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I.—SIGHT AND SMELL IN VERTEBRATES.

SIGHT and smell stand to one another to some extent in rough inverse ratio. Where sight is the main intellectual sense, smell is generally deficient or unimportant; where smell is the main intellectual sense, sight is generally deficient or unimportant. The highest intellectual development is necessarily based upon sight. Hence, on the whole, as we mount in the vertebrate scale, we find sight gaining in relative importance, and smell losing in relative importance, among the most developed members of the three great groups. The lower divisions of fishes have smell for their chief sense; the teleosteans have sight. The reptiles have smell; the birds, sight. The lower mammals have smell; the Primates, sight. With the highest animal, man, sight has become the immensely preponderating intellectual sense, while smell survives with difficulty as an almost functionless relic. These are the chief propositions which the present paper sets out, if possible, to demonstrate. It is sometimes well at the beginning of a long argument to state the general conclusions towards which that argument is tending: and they are here put down by anticipation so as to save the reader the trouble of blindly following the course of the reasoning without knowing at first sight whither it is making.

The most rudimentary known vertebrate, *Amphioxus*, has a simple central nervous organ, consisting of a spinal chord,

tapering at both ends alike, without any cerebral expansion, or anything approaching a brain. But its two anterior pairs of nerves, passing to the membranous parts about the mouth, supply with filaments a ciliated depression near the snout of the fish, which is considered to be an olfactory organ, and also two pigment spots, which are regarded as the earliest form of eyes. Both sight and smell must here be very slightly developed; but it seems probable that the olfactory organ is the more useful of the two, as the eyes can only be sensitive to the mere presence or absence of light. The fish lives on shallow coasts, and buries itself in the sand on the slightest alarm, so that it has little need of sight; but it may possibly be led to its food by smell.

The lampreys and hag-fish are the lowest vertebrates possessing a brain. The common lamprey has a pair of eyes in its adult stage; but they are not highly developed; and as it passes its life in clinging by suction to other fishes, on which it slowly feeds, it cannot have much need for organs of sight. The optic nerve is small, and the connected central organs are unimportant. In the hag-fishes, which live parasitically inside the body of other fishes, the eyes are quite useless, and are entirely covered by the skin and muscles. Of course they are wholly rudimentary, and the connected central organs are probably functionless. It is quite otherwise, however, with the organ of smell in both groups. The olfactory surface is large and well-marked: the olfactory nerve is immensely bigger than the optic: and the olfactory lobes form the most important portion of the brain, especially in the freer and more locomotive lampreys. Hence we may fairly conclude that these animals are guided almost entirely by smell, and very little by sight, a conclusion which seems perfectly natural when we take into consideration their carnivorous habits. For I may as well observe here by anticipation, what we shall find to be true throughout, that in carnivores, apparently, the sense of smell almost universally takes the lead of all other senses. As living animals leave a trail behind them, and as that trail must often be perceptible when the animal itself is out of sight, it is clear at once why this should be so. Moreover, even in the cases of carnivores which feed on carrion, like the vulture and the hyæna, one can easily see that the smell of decomposing flesh must frequently prove highly useful as an indicator of its whereabouts. Anybody who has seen dogs pointing, or watched ants tracking a scent can have no difficulty in seeing why the olfactory sense must almost necessarily be of prime importance to hunting animals.

There is another fact in the anatomy of the cyclostome fishes, however, which is still more pregnant with deep and important

meaning. The olfactory lobes not only form the largest single portion of the brain, but they are also very intimately connected with the cerebral hemispheres themselves. It is usual to say that the lobes form a pair of anterior swellings of the hemispheres, and morphologically speaking, this is correct enough. But if we look at the subject physiologically and genetically, we must decide rather that the hemispheres themselves in these fishes are appendages and outgrowths of the olfactory lobes. Being immediately connected with the lobes, the hemispheres must have taken their origin from them, and must be occupied in co-ordinating impressions brought by them. It is difficult to see how one can resist this conclusion, because in all the lower vertebrates the union of the lobes with the hemispheres is most intimate, while the other nerves and central organs are relatively disconnected. Even in the highest vertebrates, the olfactory lobes still keep up a memory of this primitive arrangement, being always a portion of the body of the hemispheres; whereas the optic lobes (or corpora quadrigemina) remain comparatively distinct. Hence, it would seem, we must conclude that smell is the mother-sense of the hemispheres: and their diversion to functions mainly connected with the co-ordination of impressions derived from sight must be a later and almost, so to speak, a revolutionary change. But this diversion has probably occurred in far fewer animals than one is at first inclined to suspect: for it is most likely, as we shall see hereafter, that most mammals even, and especially the carnivora and ruminants, are mainly guided by smell, and only to a less degree by sight. Perhaps it is among the Primates alone in the mammalian series that sight has decidedly assumed the leading place, and that the hemispheres have taken chiefly to co-ordinating impressions derived from that source: though we shall see that in the teleosteous fishes sight is also first, but wholly, connected with the optic lobes; while in birds it likewise ranks highest, and has close relations with the hemispheres.

The ganoid fishes have moderately well-developed eyes, and the optic nerves, instead of going straight to their own side, as in the cyclostomes, are welded into a chiasma, which marks a distinct advance in development. But the nerves themselves and the optic lobes are still small, and quite separate from the hemispheres. On the other hand, the olfactory organ is double, instead of being single, as in the cyclostomes; the olfactory nerves are very large; and the olfactory lobes are big and important structures. The hemispheres are less intimately connected with the lobes than in the lampreys; but they seem by the mode of their union to have assumed rather the functions of slightly higher and more independent co-ordinating organs.

Most ganoids are carnivorous. In their case too, it is quite obvious that smell remains by far the most leading sense.

Among the *Dipnoi* (*Lepidosiren* and its allies), which are a divergent sub-order of ganoids, interesting as forming the best extant connecting link between the fishes and the amphibians, the same general peculiarities are observable. The hemispheres here constitute the largest part of the brain, and are coalescent; while the olfactory lobes are large and closely united to them. The *Dipnoi* are the only fishes in which the organ of smell is in any connexion with the respiratory function, part of the water which they breathe passing through the nasal sac. This is a peculiarity which is found in all the higher vertebrates—presumably descendants of an allied form. On the other hand, the eyes are very small, as are also the optic lobes in a most remarkable degree. The *Dipnoi* are river-fish and mud-haunters. They live in tropical streams, liable to dry up in the rainless season (owing to which fact their swim-bladder has been modified into lungs, supplementary to the gills); and they are carnivores, doubtless seeking their prey by scent in the turbid waters which they frequent. *Ceratodus*, however, is said to be a vegetable feeder.

Among other fishes, which stand quite out of the direct line of descent for the higher vertebrates, the Chondropterygians (sharks and rays) are certainly the most intelligent and highly developed. Apparently, they both see and smell well. The eyes are fairly good, and have a most distinct expression, wanting in all other fish. The optic nerve is large, and the optic lobes are of a moderate size. But the olfactory nerve is very big, while the olfactory lobes are immense, and are closely joined to the very important coalescent hemispheres. The lobes are also prolonged into pedicles which dilate into great ganglionic masses where they come into contact with the olfactory sacs. Moreover, these fishes have movable flaps to the nostrils, supported by cartilages and worked by muscles, whence Dr. Günther concludes that they are able to sniff actively, not merely to smell passively. Of course everybody knows that the sharks are very active, rapid, and voracious carnivores. They scent their prey from a distance, and swim up to it with extreme agility. As Lacepède justly says, smell "may be called their real eye". Dr. Günther believes that the strength of the sense of smell in fishes generally "depends mainly on the degree of development indicated by the number and extent of the interior folds of the pituitary membrane"; and these folds in sharks amount to twelve or thirteen square feet. The sharks are remarkably analogous to wolves and jackals. The rays, on the other hand, are bottom fish, imitatively coloured, and lie in

wait for their prey on the shoals. Their mammalian analogues are the tigers and wolverines. It is obvious that smell must be a sense of immense importance to both families.

All these orders of fishes agree, apparently, in the fact that with them smell decidedly preponderates over sight as a guiding sense. The Teleosteans, on the contrary, which form the vast mass of existing fishes, besides including almost all the best known species—such as the perches, mullets, breams, mackerels, gurnards, salmon, trout, cod, flat-fish, eels, &c.—apparently trust as a rule far more to sight than to smell. The eyes are usually much larger in proportion to the whole size of the animal than in the other orders: a familiar instance of the difference being supplied by the contrast between those of a salmon and of a dog-fish. Moreover, the large optic nerves are connected with a pair of very big optic lobes, which constitute the principal part of the brain, being generally far larger than the hemispheres and the olfactory lobes put together. The Teleosteans have been decidedly the most successful marine race in the struggle for life, and they are now fast living down the once dominant ganoids and perhaps even the still dominant chondropterygians: it is possible, therefore, that they may mark in part the triumph of sight over smell in the marine world. On the other hand, it must be remembered that they have many other structural advantages, and that when they are carnivorous they are so generally in quite another sense than the sharks and their allies, so that eyes are naturally more important to them than organs of scent. Most of them live by browsing upon seaweeds, mollusks, crustaceans, insects, coral polypes, or other sluggish invertebrates, instead of pursuing fast-swimming fish. The sharks are the true higher carnivores of the sea: the Teleosteans are the herbivores, rodents, and insectivores. It would be interesting to know whether the occasional rapid and highly carnivorous Teleosteans—such as the tunny, or the ravenous serrasalmonoids of South America in which smell is certainly well developed—show any difference from the rest of their kind in the relative magnitude of the olfactory lobes and the hemispheres, proportionally to the optic lobes.

A few more facts about sight in the Teleosteans are worth noting in this connexion. In the first place, they are the only order of fishes in which I have been able to hear of any distinct proofs of colour-perception. It is remarkable, too, that they include all those instances in which the males display brilliant colouring, attributed by Mr. Darwin to sexual selection. These colours generally co-exist with very excitable tempers (as is also the case with highly ornamented birds and mammals): and in one instance at least, that of *Betta pugnax*, the metallic colours

are directly excited by the appearance of a rival, or even of the fish's own reflection in a mirror. A large proportion of the most exquisitely coloured species—in fact almost all of them—feed upon the bright-hued polypes and other organisms of the tropical coral reefs. All these points go to prove the possession of a relatively high development of vision. In some few Teleosteans, sight undoubtedly attains a very high degree of evolution. This is especially the case with *Periophthalmus*, which leaves the water and hunts crustaceans or other small animals on mud-flats at ebb-tide. Its eyes, which are very movable and can be thrust out of their sockets, "probably possess as highly developed vision as those of any amphibian". It sees in the air as well as in the water. *Anableps*, which swims half above the surface, has its eye divided horizontally into two portions, one adapted for vision in air, the other in water. From these and like highly developed eyes, mostly belonging to littoral or pelagic forms, we have every gradation of degradation till we reach the absolutely blind fishes of the caves. Thus species like the angler or fishing frog, which lead a sluggish life on the bottom, lying in wait for their prey, have very small eyes: and in most of the deep-sea species these eyes have become wholly rudimentary (or as we ought rather to say, obsolescent). There are, however, some remarkable deep-sea forms with very large and peculiar eyes, adapted as Dr. Günther supposes to the perception of phosphorescent light only: though I confess that Dr. Gwyn Jeffreys's doubts as to the correctness of this interpretation seem to me well founded, especially when one considers the bright and definite coloration of many abysmal animals. The actually blind Teleosteans seem usually to make up for the loss of sight by specially acute hearing, as well as by peculiar tactile or olfactory organs. Thus *Amblyopsis spelæus*, from the Mammoth Cave in Kentucky, hears with unusual acuteness, and has a number of tactile papillæ arranged in ridges on the head, and provided with nervous filaments from the fifth pair. *Lucifuga*, from the caves of Cuba, has the barbels replaced by numerous minute ciliæ or tubercles. *Aphyonius*, a blind deep-sea species of the New Guinea coast, has the head covered with a system of wide muciferous channels. That sight in most Teleosteans is fairly well developed may be inferred from two facts: first, the care with which artificial flies and other baits must be imitated in order to deceive them: secondly, the frequency of protective colouring and design in many fishes and in other marine animals, which can only be intended for the eyes of fishes themselves; these protective devices being sometimes (as in the case of the *Phyllopteryx eques*, a pipe-fish which absurdly mimics a piece of sea-weed) extremely minute and

highly developed. Smell, however, helps them out largely. Fly-fishers find that trout which have at first refused the fly will often rise to it when it is smeared with a piece of cut earth-worm.

The main point in connexion with Fishes as a whole is this. The brain in them consists of three more or less disconnected parts. Of these parts, the hemispheres, which grow to be the main portion in the highest vertebrates, are really mere appendages of the olfactory nerve and lobes. Throughout the whole class, the olfactory nerves "always retain their intimate relation to the hemispheres, the ventricles of which are not rarely continued into the tubercle or even pedicle of the nerves". So that in fishes generally the hemispheres remain, in all probability, essentially the higher co-ordinating organs in connexion with the sense of smell. Of course the smell-impressions are duly co-ordinated with sight-impressions, and both with motions; and commissures exist between the three main portions of the brain—the hemispheres (including the olfactory lobes), the optic lobes, and the cerebellum—but this does not militate against the general conclusion that the hemispheres themselves still have their special subject-matter found for them exclusively by the sense of smell. They are in fact specialised and highly evolved outgrowths of the primitive chord, which have been developed in close relation to the development of an advanced olfactory organ. The fundamental importance of this conclusion must be my justification for allotting so much space to the lowest and least familiar division of vertebrates.

Concerning the Amphibia little need be said. On the whole, their peculiarities are much like those of the *Dipnoi*, with which they are so closely connected. Both the optic lobes and olfactory ganglia, however, are relatively smaller, while the hemispheres are relatively larger. The eyes are better developed than in most fishes, and apparently sight plays a very large part in the amphibian consciousness. How far signs of acute smell have or have not been noticed in them I am unable to say.

When we pass on from the Ichthyopsida to the Sauropsida, we meet with facts of great importance. Among the reptiles, smell certainly appears to be the leading sense, though sight is also far more perfect than in the lower vertebrates. In the snakes, especially, the membrane of the nose is very expanded, the olfactory nerve is extremely large, and the hemispheres form the mass of the brain, while the optic lobes are comparatively small. In many snakes and lizards, indeed, the eyes are rudimentary. But a more interesting fact about the reptilian development is this, that among reptiles there apparently begins

a closer connexion between the various divisions of the brain—an integration, as Mr. Herbert Spencer calls it—doubtless answering to a more complete co-ordination of the sense-impressions yielded by the different senses. There appear a certain number of intermediate and connecting bodies, in a nascent form, probably foreshadowing the corpus striatum and the thalamus of higher animals. Now what, from our present point of view, is the import of these new bodies and of the large cerebral peduncles connecting the hemispheres with the optic lobes and the medulla oblongata? Do they not point to the growth of a new and higher order of co-ordination, which these large connecting organs subserve, by bringing sights into closer relation with smells, and by transmitting the results of the co-ordinating action exerted upon both to the motor nerves? In the teleosteous fishes, we saw, apparently, that sight took the lead over smell: but the effect of this substitution of one sense in the place of another was not to produce a new order of co-ordination; it was merely (we judged) to increase the size of the optic lobes relatively to the hemispheres. In that case, apparently, the optic lobes really seemed to answer in function (though not of course in their homologies) to the cerebral hemispheres in man: while the hemispheres themselves seemed to sink into mere central organs of the secondary sense of smell. But in the reptiles, if the present view has any truth in it, something other than this has happened. Sight and smell are co-ordinated in the reptilian system by a single supreme central organ. Had such a change been accomplished in a race of animals in which sight was the leading sense, it seems to me we might naturally expect the original central organ of sight,—the optic lobes—to grow into the main central organ for the whole organism. If men and other mammals, for example, had been developed directly from the teleosteous fishes, then we might expect that it would be the mid-brain which should grow out and overshadow the two other parts, instead of its being the fore-brain, as we know to be actually the case. But the birds and mammals are descended, on the contrary, from fishes more or less like the *Dipnoi*, from Amphibians, and from early quasi-reptilian forms. These creatures, I believe, all have smell, not sight, for their leading sense. Hence it seems natural that in their case the central organ of smell should become the main and supreme nerve-centre for the whole body, and that sight-impressions should be referred to it, so to speak, for consideration and decision, by comparison with the scent-indications, before the final message of the supreme centre is sent down for execution to the muscles. Thus, I venture to fancy, the fore-brain, originally a mere big special ganglion for

the elaboration of smell-impressions, has grown into the main directing agency of the whole mechanism: and the higher functions connected with the co-ordination of sight-impressions have been transferred to it from the optic lobes, which remain (as corpora quadrigemina) in the higher vertebrates mere immediate receivers rather than final co-ordinators of the sense-messages. As sight gradually replaced smell, in the hierarchy of the senses, the connecting bodies, and especially perhaps the thalami, would become more and more important, while the hemispheres proper would be given over more and more to comparatively abstract co-ordinations, and would have less and less direct reference to the sense of smell, till at last in civilised man that sense would dwindle away to a mere emotional relic, while the memory of its once dominant position would be kept up only by the peculiar connexion of the olfactory nerves with the hemispheres themselves. The growth of the corpus striatum, which is the part of the hemispheres in closest connexion with the optic centres, would be the first measure of the change. This is a bold theory, perhaps; yet I venture to suggest it in a tentative manner, and with all due deference, to those who are better able to form an opinion upon its probability than myself.

Within the ranks of the Sauropsida themselves, such a change may actually have taken place. Birds seem to be comparatively little or not at all guided by smell, while their sense of sight is remarkably acute. The eye is wonderfully perfect, and the optic nerve is the biggest of all the cranial nerves. "In a large majority of them," says Dr. Bastian, "the power of vision seems far to transcend that of man or other animals, both in regard to range and keenness of discrimination." A hawk is said to discern a lark upon a clod of earth coloured almost exactly like itself at twenty times the distance at which it is perceptible to a man or a dog. A kite, having soared out of human sight, can still distinguish and pounce upon lizards and field-mice on the ground. The distance at which vultures and eagles can spy out their prey is almost incredible. In fact, we are quite justified in asserting that "sight is unquestionably the dominating sense of birds". It is interesting in this connexion to note that birds are the class of vertebrates which exhibit the strongest appreciation for colour, of which Mr. Darwin has collected several cases (*Descent of Man*, vol. ii., p. 110), while the bower-birds are the only animals which gather and keep coloured objects for their own sakes. I have tried in my little book on *The Colour-Sense* to show that this taste is highly developed in all birds: and it is certain that no other group of animals, except the very similarly circumstanced butterflies, display such

brilliant hues, presumably due to sexual selection, in their own integuments. The parallelism between such birds as the humming-birds, sun-birds, parrots, or lorries on the one hand, and the butterflies or rose-beetles on the other, is certainly extraordinary. Both groups have developed organs of flight; both seem to be mainly guided by sight; both have highly evolved organs of vision; both have been largely instrumental in the production of coloured objects—fruits and flowers—in the vegetable world; both are apt to be themselves decked in very bright hues; and both display an unusual amount of secondary sexual differences. These emotional peculiarities connected with sight appear to me worth some consideration in estimating its importance in the mental world of birds.

The olfactory sense, on the other hand, seems to be very slightly developed, or almost wholly wanting, in the majority of birds. The pituitary membrane is but little expanded, and the nerves small. Even the keen sense of smell with which vultures were once credited seems to be at least doubtful; and Mr. Darwin has shown that the facts are far better explained by their great acuteness of vision. However, it is probable that birds of prey have at least much more acute sensations of smell than their grain-eating congeners. A vulture and a turkey weigh about the same weight: but the olfactory nerve in the vulture has five times the thickness of the same nerve in the turkey. I am not aware that any bird (except perhaps *Anas moschata*) is provided with a sexual allurements in the shape of a scent-gland; and this is the more noteworthy by the side of the frequency with which we find highly developed ornamental adjuncts and power of song, as well as when we compare them in this respect with mammals or insects. Birds never seem to sniff at anything: they dart at once upon objects, apparently guided by sight alone.¹ The olfactory lobes are comparatively small in birds, and the olfactory nerve, instead of being immensely the biggest, as in sharks and snakes, is relatively a mere shrivelled relic. The optic lobes are of considerable size; but the hemispheres distinctly form by far the largest part of the whole brain. However, they are probably here mainly engaged in co-ordinating the results of the dominant sense of sight, which must really make up the vastly largest share of the avian consciousness. The contrast between the brain of a lizard and the brain of a turkey is most interesting in this respect. In the lizard, the large olfactory lobes obviously

¹ It would be interesting to know whether any flowers specially adapted for fertilisation by humming-birds or brush-tongued lorries possess a perfume.

form the main *raison d'être* of the hemispheres: in the turkey, their very dwindled representatives seem mere functionless rudiments of once useful structures—appendages of the hemispheres rather than their main part. The connecting mechanism of the *crura cerebri* is now an important part of the brain; and integration has reached a very high point. The hemispheres seem to depend mainly for their raw material upon the thalami and the corpus striatum. They appear, in short, to be thrown back from the olfactory upon the optic regions. Yet we may safely infer that birds are probably descended from earlier ancestors in which smell was still the leading sense; because the affinities of the earliest birds are with carnivorous reptiles—pterodactyls and deinosaurians. The apteryx, that curious wingless New Zealand bird, which exhibits so many singular and early traits, differs from all other birds in the position of its nostrils at the end of the bill, in the large expansion of its pituitary membrane, and in the quasi-mammalian arrangement of its nasal nerves in their passage through the skull. "These peculiarities indicate greater acuteness in the sense of smell; and this is thought to be associated with its habit of probing among loose earth to hunt for worms by scent." *Archæopteryx*, the intermediate reptili-avian form from the Solenhofen slate—a bird with a long lizard-like tail and single pairs of quills on each caudal vertebra—had teeth of a carnivorous type, and therefore doubtless resembled the snakes, crocodiles, and other carnivorous reptiles in the predominance of smell over sight. Thus we can understand why in birds the hemispheres should remain the chief central organs, in spite of the comparative disuse of the olfactory sense. These original chief centres had got a start, so to speak, beforehand, and they remained the head office ever afterwards, even though the business they had to transact was mainly connected with the adopted optic functions, not with the primitive olfactory functions.

Mammals are probably descended from a quasi-reptilian animal, having amphibian affinities. In most of them, and especially in the lower orders, smell seems to remain the dominant sense-endowment. In the carnivorous marsupials,¹ which doubtless best represent the ancestral traits, "the olfactory lobes are very large and completely exposed, while the cerebral hemispheres are comparatively small and quite smooth". In fact, the hemispheres are mere out-growths from the lobes. I am inclined to think that we generally vastly underrate the importance of smell to almost all mammals except the quad-

¹ Unfortunately, I can find no serviceable particulars as to the brain and olfactory nerves of the Monotremata—*Ornithorhynchus* and *Echidna*.

rumana and the cetacea. The universal habit of sniffing the air among ruminants, the way in which the dog tries every object by smelling at it, the cautious manner in which horses scent strange persons and places, all give us familiar instances of the value of smell to mammals. With reference to this point I cannot do better than quote the following luminous passage from a letter of Prof. Croom Robertson in *Nature*, Feb. 27, 1873—which, indeed, with Sir John Lubbock's experiments upon ants, first suggested to me the train of thought which I am now endeavouring to work out.

"Our external world (whether as actually perceived or imaginatively represented) may be called a world of sights and touches, blended with and modifying each other in the most intimate way. . . . All other sensations, as of hearing, smell, and taste, come before us only discontinuously and intermittently, not being had from all things nor always from the same things. But, in a dog's experience, touch cannot possibly co-operate with sight, as it regularly does in ours. The organ of effective touch in man—touch that gets associated with vision—is, in the last resort, the hand, combining mobility and sensitiveness in the highest degree; and the dog has no hand. Its mobile limbs are not sensitive at the extremities, and, though it has sensitive lips, these, having no such active mobility as the human hand has, are extremely limited in the scope of their apprehension. Its touch being thus defective, what is there then in the dog to play second to sight—which as leader needs support, were it only because there is not always light to see with? Smell, I cannot but think, seeing that, whilst the organ is incontestably acute, it has the great advantage over the tactile surface of the lips, of receiving impressions from things already at a distance. If we only suppose—what the facts make very likely—that the dog's smell is acute enough to have some sensation from all bodies without exception, nothing more is wanting to enable a psychologist to understand that the dog's world may be, in the main, a world of sights and smells continuous in space."

Now, after much consideration of the ideas suggested by this letter, I am inclined to think that it not only does not overstate but actually understates the real importance of smell to the dog. I am inclined to believe that in the dog, in most other carnivores, and perhaps in ruminants and rodents as well, smell does not play second to sight, but that sight plays second to smell. The dog's world, I fancy, is really primarily a world of smells continuous in space, with which sights are interblended much as touches are in our own. With us men, smell has become such a mere subsidiary sense, such a purely emotional relic, that we can hardly at first realise its probable primary intellectual importance to certain other animals. But if we take the example of the ants among invertebrates, we see that an exceptionally intelligent race of hunting animals has not only smell for its principal sense (as Sir John Lubbock has abundantly proved) but has apparently no other guiding sense worth mention. More than that, so effectual is smell to ants,

that the workers have in most cases mere rudimentary vision, and in some cases no vision at all, though they are descended from flying insects with highly developed eyes. Smell has here proved so sufficient for all the needs of a hunting creature that sight has actually been lost as a useless adjunct.¹ All the numerous impressions which must go to make up the world of so intelligent an animal as the ant appear to be supplied by the sense of smell alone. If, then, smell can prove so valuable to an invertebrate, there is no reason why it should not prove equally valuable to a vertebrate of similar habits. And the more I have watched dogs from this point of view, the more have I become convinced that smell really does form their principal sense. Let one but recall the way in which dogs go through the world sniffing on every side; the way in which they scent out their master's property or recognise him in strange clothes by the smell alone; the way in which they single out one particular trail from the thousands that must exist everywhere across fields and roads; the way in which they take stock of man, other dogs, and inanimate objects by smelling them all over; and one can hardly doubt that the olfactory sense is really the one by which mainly they track their path through life.² Our world is a picture, with a background of tangibility: theirs, I believe, is a series of continuous and mutually related smells, with a background of visibility. In many cases one can see that a dog pays comparatively little attention to sight, and much to smell. When the olfactory nerve is severed, dogs make extraordinary mistakes about food, and seem to lose recognition of many persons and things. Mr. Douglas Spalding found that blind kittens, three days old, exhibited an "instinctive" horror of the smell of a dog on the hands.

The cerebral hemispheres in most mammals certainly have to deal both with sights and smells; and the part played by sight in the mammalian consciousness is almost beyond a doubt far larger than the part played by it in reptiles, though not as large as in birds. But the size and importance of the olfactory lobes in the mammalian brain is very marked; and on that ground

¹ Sir John Lubbock has noted that an ant accidentally born without antennæ seemed to be quite as helpless as a blind man among ourselves: and Hauser has recently shown experimentally that the antennæ are undoubtedly organs of smell.

² I have tried to sum up the evidence on this point in an article on "The Dog's Universe," contributed to the *Gentleman's Magazine* for Nov., 1880. I have there contended (1) that dogs discriminate persons and things mainly by smell; (2) that they associate smells with one another and with other sensations; and (3) that they remember persons and objects mainly by smell.

alone one might be inclined to suspect that smell still continued to supply the chief raw material of intelligence. Prof. Huxley regards the insectivora as the central group of placental mammals, and therefore their brain may be considered as probably representing the primitive placental form. It is remarkable for its low development. "The olfactory lobes are singularly large, and are wholly uncovered by the cerebral hemispheres; which on the other hand do not extend back sufficiently far to hide any part of the cerebellum. Indeed, they hardly cover the corpora quadrigemina." Here as in the marsupials we seem clearly to catch the hemispheres in their primitive condition as mere appendages or higher central organs for the correlation of smells with sights and motions. In the rabbit "the olfactory nerves are enormous, and pass by a broad smooth tract, which occupies a great space in the lateral aspect of the brain, into the natiform protuberance of the temporal lobe". (Huxley.) In this case, and others like it, the appearance of the hemispheres distinctly suggests the notion that they are still mainly mere outgrowths or central organs of the olfactory system, though of course they have large connexions with the optic region. In the pig "the olfactory nerves and tracts are hardly less conspicuous". (Huxley.) In the dog, "the olfactory lobes are very large, and expand posteriorly on the sides of the brain into a broad mass continuous with the *gyrus uncinatus*, or hippocampal lobule". (*Id.*) In all these cases, the expansion of the pituitary membrane is enormous. When we further consider the fact that no mammal has bright-coloured sexual adornments, except among the quadrumana, while many of them (musk-deer, musk-rat, beaver, &c.) have special scent-glands, and all of them seem to possess attractive odours to their own kind, the contrast between the provinces of sight and smell is further heightened. It may be noted, also, that while the very abnormal whale has absolutely no olfactory nerves or lobe, the highly carnivorous seal has a most complicated and contorted pituitary membrane, whose extraordinary development "would lead us to suppose that it hunts by scent alone". In fact, the swimming carnivora are in this respect the exact converse of the smell-less cetaceans. Altogether, when we consider these structural facts on the one hand, and the extraordinary functional exhibitions of olfactory sensibility by blood-hounds, deer, bison, camels, and horses on the other, it is difficult to resist the conviction that smell forms the leading sense-endowment of all the lower mammals. And if this be so, then it would seem that it has formed the leading sense-endowment of all the ancestors of man, up to the point at which they began to differentiate themselves as quadrumana from the lower mammals. I may add that the embryological

development of the hemispheres in all mammals clearly suggests their original dependence upon the olfactory lobes. These organs bud out most distinctly at a very early stage of the growth, and the other parts of the hemispheres only gradually rise into prominence behind them.

The bats, which are in some respects intermediate between the insectivora and the quadrumana, supply us with a useful hint as to the causes which have led to the substitution of sight for smell as the leading sense in the latter group. They fall naturally into two divisions, the frugivorous and the insectivorous. I have not been able to discover from any printed account whether there is any difference between these two divisions as regards the development of the olfactory lobes: but there is certainly a very remarkable external difference in the nose and ears. The frugivora have no special peculiarities in either organ: the insectivora—which include the blood-sucking vampyres—have “the integument of the nose developed into an appendage which is very large and leaf-like, and the tragus of the large ears is often similarly modified”. Now, one can easily understand that the frugivorous bats—flying foxes and like partially diurnal species, which feed upon large fruits on trees—should depend mainly upon sight for guidance; whereas the insectivores, which hunt flies or suck the blood of mammals by night, must depend more upon other senses, such as smell and hearing. This contrast helps us to understand the peculiar position of the quadrumana.¹

A group of dominant arboreal mammals, living upon fruits and roots, and not given to hunting, would naturally find sight a more useful guide to their actions than smell. The gleam of fruits upon the tree must be to such animals the principal object of interest. It must be to them what the scent-trail of a hare is to the dog, and what the scent-trail of a comrade is to the social ant. Such a group are the higher quadrumana: and among them it appears that sight—more particularly the colour-sense—is more highly developed than among any other animals save only birds. Indeed, the influences which mould the life and tastes of the higher monkeys must be almost identical with those which mould the life and tastes of such frugivorous birds as the parrots and the toucans—amongst which also the colour-sense seems to attain a very high degree of development.

The lower quadrumana, at least as they survive at the present

¹ A parallel case may be quoted from the insect world. Dr. Hauser notes that the plant-eating hymenoptera require less aid from the sense of smell than their carnivorous allies, the saw flies: and he finds that while the ichneumon fly has 5000 olfactory pits on each antenna, the *Lyda* has only 600.

day in the form of the lemurs, are nocturnal animals of varied habits, and to some extent less strictly frugivorous than the higher groups. The lemurs still retain comparatively large olfactory lobes, and relatively small and flattened cerebral hemispheres. But their eyes are also often large and well-developed. As we mount upward, however, the olfactory lobes grow smaller and smaller, and the olfactory tract in the brain becomes of less and less importance. At last, in the chimpanzee, "the olfactory nerves, or rather lobes, are, relatively, very small, and the tracts which connect them with the uncinate gyri are completely hidden by the temporal gyri". Meanwhile, the frontal and occipital lobes, which are the parts of the hemispheres apparently connected rather with sight (and the higher co-ordinating functions) than with smell, have grown out enormously, and completely overlap the olfactory tract and the cerebellum. Another peculiarity may also be noted. "In the large majority of mammals," says Prof. Flower, "the base of the olfactory lobes extends backwards to the under surface of the temporal lobes, obliterating the lower part of the fissure of Sylvius; whereas in the true apes and in man, their connexion with the cerebral hemispheres is chiefly with the anterior lobes and the bottom of the fissure itself." The functional indications are quite parallel to these structural peculiarities. The lower monkeys still smell at their food; but the higher ones do so to a much less marked extent. All monkeys show a very strong amount of attention to visible things, especially to all moving objects and to bright colours. Among the lemurs and marmosets (as among the lower mammals) there are no coloured ornamental adjuncts: but among higher monkeys we find brilliant sexual hues in the rhesus, the mandrill, and some other species. On the other hand, no monkey (so far as I know) has any scent-glands. But half-an-hour at the monkey-house of the Zoological Gardens will supply more proof of the importance of sight among the higher quadrumana than any amount of description: and as everybody has been there, I need not detail the proofs.

Of course I do not overlook the enormous importance of the hand to the higher quadrumana, and the large share it must undoubtedly have borne in the evolution of the simian and human intelligence. But the hand itself has directly aided, I believe, in the substitution of sight for smell as the dominant sense. For the hand tells one certain facts as to the exact figure of objects; which facts the eye foretells in anticipation of touch. On the other hand, smell only tells one at best certain far more general facts as to the existence and direction of an object, but not as to its shape or tactual properties. Unless I am mistaken,

Mr. Herbert Spencer somewhere says that smell is anticipatory taste, while sight is anticipatory touch. Accordingly, smell is most important to a hunting animal, without definite tactual or grasping organs,—an animal which has to track an unseen prey by its trail alone, and then eat it by tearing it with its jaws; whereas sight is most important to a frugivorous animal, with a prehensile hand—an animal which has to grasp visible coloured fruits with a special tactual organ. But the union of two such peculiar gifts—highly developed sight and highly developed grasp—in a single animal naturally leads to a very highly evolved intelligence. For these two modes of apprehension between them tell us far more about the intimate nature and relationships of bodies than the smell and taste upon which mainly dogs and horses have to rely can possibly do. Such a high intelligence as that of the Primates could hardly have been evolved on the comparatively indefinite indications of smell and taste alone.

In passing from the other Primates to man, we meet with very similar results. The sense of smell becomes with us a mere relic, and has little connexion with intellectual processes: while the sense of sight becomes the dominant and all-important source of raw material for guidance. The dwindling of the olfactory sense has probably gone on largely within the human race itself. Idiots smell at their food continually, and clearly employ scent as a means of discrimination far more habitually than normally developed individuals. The lower races of mankind also seem to discriminate persons by scent, and certainly use olfactory sensations as practical guides to an extent quite unknown amongst the higher races. In ourselves, the sense of smell has become almost purely emotional: it is a source of pleasure or discomfort, but serves very little as a guide to conduct. The olfactory lobes have shrivelled away almost to nothing. Probably too, the connexions between the olfactory nerves and lobes, and the main portions of the cerebral hemispheres, are very indefinite and weak in civilised man: the nerves have little to do with the main work of the brain. "In the monkey and in man," says Prof. Ferrier, "the direct connexion between the outer root of the comparatively small olfactory tract and the subiculum [tip of the temporal lobe] is not so evident, though in the monkey it is more apparent than in man." Perhaps this last vague connexion between the olfactory sense-organs and the higher co-ordinating structures of the brain may account for those curious and vivid associations aroused in certain minds by perfumes or passing odours—though I confess I am rather inclined to be sceptical as to the real existence of such associations.

On the other hand, the importance of sight to man is obviously enormous. The vast mass of our mental universe is made up of sights. Visible symbols are the language of our thought. "It is only in the ape," says Geiger, in a striking passage to which I owe some acknowledgment, "that the sense of sight and the interest in the visible world assumes more importance [than in the lower mammalia.] We see mankind at a low stage of civilisation still availing themselves of the faculty of scent, and examining objects by its means, while we are wholly deficient in such a faculty. At length sight attains higher and higher dominion, and the interest concentrated upon it seems therefore to be the real privilege of man." It might not be too much to say that the hand and the eye, going together, have made man what he is. Here again, of course, I do not overlook the enormous importance of language, and of the new value which it has given to the sense of hearing: but then we must remember, too, that language itself is mainly concerned with visible aspects of things—especially in its earlier stages—and mainly calls up in our minds ideal pictures of visible objects. When we further recollect the long infancy of the human baby, and the length of time during which visual impressions form the enormously larger proportion—nay, almost the entire content—of its nascent consciousness; when we recollect that for many months it hardly exerts its tactual and muscular powers at all, but knows the world mainly as a shifting phantasmagoria of sights, slowly correlated in its experience with touches and grasps; when we recollect all this, we cannot possibly overlook the vast and preponderating importance of sight in building up the human intelligence. If we contrast the wild carnivore, sniffing the track of its prey, scenting its mate and its young, taking stock of all nature by smell, remembering its way and such places or creatures as it encounters chiefly by olfactory signs—with the man of science, accurately measuring everything in the last resort by an appeal to the delicately discriminative sense of sight, employing microscopes and micrometers, dividing thermometers into visibly graduated decimals of degrees, testing chemicals by means of visible reactions, reducing the vague indications of all other senses—touch, taste, smell, heat and cold, pressure, muscular tension—to the definite indications which sight alone can yield; we shall see how absolutely essential is the predominance of sight for the evolution of the highest intelligence. Blind species of inferior mammals, like the moles, seem hardly inconvenienced by the want of sight: but a blind species of men, substituting olfactory for visual impressions, is almost a transparent absurdity.

Finally, I need hardly add, to guard against a possible mis-

apprehension, that I do not suppose any particular brain-elements once engaged in the elaboration of smell-impressions to have been afterwards turned aside so as to engage in the elaboration of sight-impressions, or the carrying on of any other functions whatsoever. Such a supposition I hold to be absolutely incompatible with the theory of distinct functional localisations in the nervous system. It appears to me that the activity of every nerve-cell, as well as its subjective concomitant (if any), must be strictly determined by its place in the whole system—its connexion with peripheral end-organs and with other cells elsewhere. Nor do I suppose the relations of part with part—and the functions of the various regions—to be by any means so simple as I have perhaps seemed to make them here, for the sake of brevity in exposition. All that I wish to suggest is that, while originally the main part of the brain was the part concerned with the co-ordination of smells and motions—now, in certain special groups, such as birds and Primates, the main part is that concerned with the co-ordination of sights and motions. The purely olfactory regions have dwindled; the visual regions and the regions connected with them have increased; while higher co-ordinating elements have been superimposed above the whole mass. Thus in the end it happens that the cerebral hemispheres, originally, as I venture to think, mere special olfactory centres, have come to have little or nothing to do with olfactory sensations, while they are wholly engaged in the reception and co-ordination of visual sensations, and of more abstract relations ultimately founded for the most part upon visual symbols.

GRANT ALLEN.

II.—THE HOMERIC WORDS FOR 'SOUL'.

ALTHOUGH the following study is in itself a slight one, yet the field of inquiry in which it is an essay is likely at some future time to prove of almost limitless value to the psychologist who sets before himself for study the past history of human thought. While, up to the present time, those philologists who have turned their attention to philosophical questions—such as Geiger and Noiré—have directed their efforts chiefly toward the solution of that seemingly insoluble problem, the Origin of Speech, the less striking, but more positive, results afforded by the history of language have been to a great extent overlooked. In whatever way speech began, there can be no doubt that the successive changes of sounds leave on record the best history we can ever obtain of the early development of

ideas, and that this history has been opened to the world, in recent days only, by the growth of Comparative Philology. To this study of the history of ideas through a study of the changes of words, Chavée, one of its exponents, has given the name *Idéologie positive*.¹ It is Comparative Ideology, too, for its essential principle lies in the comparison of the words which at different periods of man's development have, roughly speaking, connoted the same idea; or else in a comparison between the different ideas which, in various stages of its use, have been connoted by the same sound. And when it has been more fully recognised than it is at present, that every word now bearing a moral or metaphysical (extra-physical) idea springs from a root which had originally a physical meaning; when such words have been—as they generally can be—traced onwards through various stages in which the physical and metaphysical senses are found to be gradually differentiating themselves, it will be acknowledged that, in the tracing of these roots and in the following out of the history of these words, we have entered upon the best way towards the building up of a thorough system of Inductive Psychology.

I do not pretend, however, in the following brief enquiry to contribute anything material to this boundless possible harvest of results; unless it be that any essay must be of help towards establishing the *principles* of study in a field so new. All that is here proposed is, to ask what was at a certain time the meaning of some four words, which may all, in one sense or another, be translated by our word *soul*: the time being the time of Homer, which, whatever the date which we assign to it, is at all events the era of the earliest literature of the Western Aryas. That *θυμός*, *ψυχή*, *σκιά* (*σχιή*), *εἶδωλον*, do not mean the *same* as our soul requires no lengthy demonstration; nay, that the Homeric sense of these words is not that of Pindar or of the Tragedians, that it is still more remote from the sense in which the words are used by Plato and the Philosophers,—this is likewise a certainty, incident to the growth of human thought during the intervals between the various eras. In trying to gain an insight into what Homer understood by *θυμός* and *ψυχή* and the rest, we must be specially upon our guard against the habit of using the words of our own language in any senses save those which are legitimately theirs. In translation we have often a loose and most misleading way of employing a certain word which we allow to take to itself fresh meanings according to the exigencies

¹ *Idéologie lexicologique ou positive*, by H. Chavée, a posthumous work published in 1878. The essay is interesting, as any essay in this almost unbroken ground must be; it is not without ingenuity and originality; but it is not, I fancy, perfectly trustworthy.

of the original: and we forget meanwhile that by this process we have dispossessed that word of nearly all its original power of conveying an idea. The first necessity is to dismiss from our minds all these *translator's words*. In enquiring after the significance of *θυμός*, *ψυχή*, *σκιά*, and *εἶδωλον*, our plan must be to render each as it occurs, by the nearest possible equivalent in the individual case; then, having collated these different translations and eliminated the separate elements from each, we have in the remainder the closest ideologue which our language affords of the Greek original.

I have said that it is probable, or more than probable, that every word has had its root in positive physical sensation. Of course the physical basis is much more easily traceable in some words than in others. Of the four words given above, *θυμός* alone is, in its own language, divorced from all sensuous meaning: so far as the Greek is concerned, it is a word of a purely spiritual or metaphysical character. *Mind* is the usual translator's word for *θυμός*; but it will be easy to show that the two are not really equivalents. *Mind* may be used as a short-hand expression either for the thinking and intellectual faculties or for the seat of thought, but it cannot properly connote the seat of emotion. *Soul* is a fitter word to express this last notion, and generally speaking, *soul* better translates *θυμός* than does *mind*; but *soul*, again, is a word of various significance, concerning the true meaning of which there has been no small amount of dispute.¹ *Θυμός* is the home of both thought and feeling. Where it seems best translatable by "mind" is in such a phrase as, *μερμήριξε κατὰ θυμόν* (*Il.* viii. 169), "he pondered in his mind" ("pondered in his soul" is, according to the usual meaning of *soul*, scarcely reasonable); *ἕως ὃ ταῦθ' ὥρμαινε κατὰ φρένα καὶ κατὰ θυμόν* (*Il.* i. 193), "while he was turning these things over in his *φρήν* and his *θυμός*"; *φρονέων ἐνὶ θυμῷ*, "thinking in his *θυμός*" (*Il.* viii. 430); *ἐέλπετο κατὰ θυμόν*, "he deemed or expected (not "hoped" here) in his mind" (*Il.* xiii. 8).² In none of these cases is *θυμός* associated with the idea of emotion. In many passages of this kind it is worthy of notice that *θυμός* is linked with *φρήν*. *Φρήν* means literally the breast or heart, and therefore, according to the usual fashion of primitive psychology, it might be supposed rather the seat of feeling than of

¹ Into which dispute, however, it would be by no means becoming to enter, while engaged upon an inquiry such as the present one. The primary condition of these ideological studies is that we confine ourselves strictly to the common use of words and never attempt to import into them any new senses which may be agreeable to our own theories.

² Cf. also iv. 163, and vi. 447, "know"; xxi. 137 (this is the *θυμός* of a river).

thought. However it had become the seat of thought, while *κῆρ* or *καρδία* answered to our heart. Therefore it is that, when associated with *φρήν*, *θυμός* is rather the mind than the soul. In *Il.* iv. 309, *θυμός* and *νόος* are associated; but this connexion is much more rare, and in this particular case *θυμός* may be a contrast or supplement to *νόος* and not its analogue. So much for *θυμός* as *mind*.¹ On the other hand, the instances in which *θυμός* appears as the seat of the emotions are overwhelmingly common, far too common indeed to be instanced in detail here: ἀλλ' οὐκ Ἀτρεΐδῃ ἦνδανε θυμῷ (*Il.* i. 24), "but it pleased not Atreides in his soul"; μάλα περ θυμῷ κεχολωμένος, "mightily enraged in my soul"; ἐμῷ κεχαρισμένος θυμῷ, "dear to my soul"; ἔχω δ' ἄχε' ἄκριτα θυμῷ, "I have pain unceasing in my soul" (*Il.* iii. 412), are a few examples, and typical ones.²

In addition to these shades of meaning, *θυμός* has sometimes

¹ The following are some more instances in which *θυμός* is associated with the idea of thought or with *φρήν*: *Il.* xiii. 280, 487; xiv. 253; xv. 566; xviii. 4, 15; xx. 264; xxii. 78; *Od.* iv. 117, 120; v. 365 (the last two the same as *Il.* i. 193). Very frequently we hear of the *θυμός* in the *φρήν* (πᾶν ἐνὶ φρεσὶ θυμός *Ιάνθη*—*Od.* xv. 165, &c., as above). Here *θυμός* is rather soul than mind.

² As the frequent recurrence of the word *θυμός* in Homer renders impossible anything like an exhaustive analysis of its meanings; as there are especially certain *nuances* of those meanings which are instructive, but which I cannot touch upon, I will refer the reader to a number of passages ranged under various heads, and these passages he can consult for himself:—

θυμός, seat of pleasure—*Il.* i. 24 or 378; vii. 31 (xi. 520, &c.), 189, 192; ix. 189; xiii. 416, 494; xiv. 132, 156, 337; xv. 98, 674; xxi. 45; xxiii. 597 and 600 (here *μετὰ φρεσὶ*); and xxiv. 119, 147, 176, and 196. *Od.* vi. 155; x. 373-4; xv. 165, &c.

θυμός, seat of pain or distress—*Il.* iii. 412; v. 869; vi. 524; xii. 179; xiii. 86; xiv. 39, 475; xviii. 29, 53, 461; xxi. 270; xxii. 53. *Od.* ix. 295 (with this last compare what is said on p. 477).

θυμός, seat of love—*Il.* i. 196 and 209; ix. 343; *κεχαρισμένος θυμῷ* (*v.* 243, 826; xix. 287).

θυμός, seat of anger—*Il.* i. 429; ii. 223; iv. 494; vi. 326; xiv. 50, 158, 191; xv. 155; xvii. 254; xxii. 70.

θυμός, seat of desire (which is not love)—*Il.* ii. 589; iii. 139; v. 135; vii. 2; x. 401 (*θ.* active); xiii. 337; xxi. 65, 177; xxiii. 894. *Od.* i. 275 (if her *θ.* desires to marry—active); xv. 66.

θυμός, seat of hope—*Il.* xiii. 813 (*θ.* active); xiv. 67; xix. 328 (*θ.* active).

θυμός, seat of fear—*Il.* xiv. 40; xv. 280; xxiv. 672, 778.

In most of these cases *θυμός* is passive and evidently *possessed* by the affections of love, anger, &c.; but in some the *θυμός* is active, and in these instances it must be credited with something like a separate personal existence. So with regard to death, as we shall see, the *θυμός* is sometimes passive, sometimes active: sometimes it is breathed out or snatched away, sometimes (but more rarely) it *leaves* the bones or limbs.

a kind of materialism about it; it desires meat and drink and is satisfied thereby, as in that very common phrase, οὐδέ τι θυμός ἐδεύετο δαυτὸς ἐΐσης, "nor did their θυμός want (go without) any part of the equal feast"¹ Θυμός is frequently associated with μένος (strength), ὥτρυνε μένος καὶ θυμὸν ἐκάστου (Il. v. 470).² In this case it might well be translated *spirit* (in one sense of that word), as, "he roused the strength and spirit of each," but I believe the real meaning of θυμός is something a shade more material than our "spirit".

On the whole it would be hard to find any word in use among ourselves that better renders all the senses of θυμός than the philosophical expression the *ego* or essential *I*; so long, that is, as we imply in the use of the expression *ego* no philosophical theory of the nature of this personality, but only the aspect of it which is contemplated by common uninstructed intelligence. Thus the θυμός, as a conception which has a place in common language and belief, is realised more as a separate entity than is the philosophical *ego*; it comes much nearer to being credited with an existence distinct from the whole individual than the *ego* ever does. In the above examples the θυμός appears as a passive something, the seat of emotion; it is not, however, only this, but likewise the *mover* of the individual. Not only may a man be angry in his θυμός, angry that is in his *ego*, in *himself*, love in himself, have his self stirred, and so forth, but the θυμός or self may command, urge, move the man: ἦ νῦν καὶ αὐτῶν θυμός ἐποτρύνει καὶ ἀνῶγει (Il. vi. 439),³ "if their θυμός moves and bids them"; τά με θυμός ἐνὶ στήθεσσι κελεύει (vii. 68),⁴ "this the θυμός in my breast commands me"; &c.

Lastly we have to contemplate a remarkable series of uses in which the θυμός represents rather the *life* itself, the vital principle, that is, or vital spark, than the seat of thought or of feeling or even than the *ego*. We are sometimes told, when one man has killed another, that the former took away (or tore out) the θυμός of the latter (ἐκ, or ἀπὸ θυμὸν ἔλοιτο, Il. v. 317, 346, 852; x. 506, &c.),⁵ at other times we hear of the θυμός being *destroyed*.

¹ Il. i. 602; ii. 431; and xxiii. 56; see also ix. 177 and Od. iii. 342, 395 (another common phrase).

² Also v. 792; vi. 72; xv. 667, &c. In xxiii. 468 and elsewhere μένος seizes upon the θυμός.

³ See also Il. iv. 263; vi. 444; vii. 74; viii. 189, 322; ix. 101; xiv. 195; xv. 43; xviii. 90, 176, 426; xix. 102; xx. 77; xxii. 142. Od. v. 89; xv. 395.

⁴ Il. vii. 349, 369, and viii. 6 (same); xiii. 784; xix. 187. Od. iv. 140; xiv. 517; xv. 339; xvi. 81 (these three, the same).

⁵ Cf. also Il. v. 848; vi. 17; xi. 381; xiv. 439; xv. 460; xvii. 678; xx. 403 (an expression which makes θυμός closely resemble ψυχή); xxi. 112, 179, 296; xxii. 68; in all of which cases the θυμός appears as passive at death.

In *Il.* i. 205, Achilles in his rage prophesies that Agamemnon will soon destroy his life—*τάχ' ἂν ποτε θυμὸν δλέσση*.¹ This expression would apply well enough to life, and might be applied to the "self"; but it would hardly apply to soul, in the sense in which the word is generally used. Sometimes a man consumes (or eats) his own *θυμός*—*καμάτω τε καὶ ἄλγεσι θυμὸν ἔδοντες*, *Od.* ix. 75. Frequently, in passages relating to death, the soul takes the initiative, and is not destroyed or taken from the body but itself *leaves* the body at death: *λίπε δστέα θυμός*, "the *θυμός* left his bones," is a common expression in Homer.²

I think it is clear from these instances that *θυμός* is something more of an entity, and is possessed of more activity than our *mind* or *soul* are thought to be and have, when considered in themselves. Of course in our employment of these words we are largely influenced by the tradition of former use, and each expression which we choose does not imply a positive belief. It implies the former existence of a positive belief, however, which has become so worn away by time that it descends to us only in the shape of a metaphor. No confusion between the physical and the abstract is now necessarily implied in such an expression as "my heart yearns"; but the expression is a sure witness to the previous existence of a phase of thought when the heart was believed to have a sort of separate identity, and when that physical phenomenon was confounded with metaphysical notions, with a soul or an *ego*. In the case of the Homeric use, we have got so much nearer to the time from which such phrases date their origin, and we must not therefore interpret them in the metaphorical sense which they now bear. We have only to read Homer with some attention, to see in how different a way all the mental ideas are conceived by the poet from the way they are conceived by ourselves. As, at first, man had no idea of the colours green and blue as abstract ideas and apart from the green thing or the blue thing, so (even at a later time) he had no conception of mind or thought, of virtue or vice, of courage or fear, as pure abstractions. Virtue and bravery and fear were not for him affections of the mind, any more than for him fever and plague were affections of the body. The mind—or better the *ego*, the *θυμός*—was *possessed* by fear, the body by disease;

¹ See also *Il.* viii. 90, 270, 358; xi. 342; xviii. 92; xx. 412. *Od.* xii. 350, &c. In these cases we have sometimes *ἄλλυμι* used, sometimes *ἀπόλλυμι*. And the sense is sometimes "destroy," sometimes "lose".

² The *θυμός* is active in the following passages: *Il.* xii. 386; xiii. 671; xxiii. 880; *Od.* iii. 455, and the passage quoted from *Odyssey* later on; also, the most important of all, *Il.* vii. 131, which is given below. It is worthy of notice that a *θυμός* is possessed by animals as well as men, and leaves them at death (*Il.* xxiii. 880).

and when the thought, which here lies in embryo, was taken hold of by the myth-making faculty, *Φόβος* (Fear), *Δειμός* (Terror), *Δοιμός* (Disease), became beings, *dæmons*; then at last they received definite shapes.

Θυμός may be looked upon as the soul or the *ego* as that is contemplated in its relation to the *living* man; but even while thus limited in its existence, we can watch that soul growing more and more into a separate entity. In the beliefs concerning a future state, the soul is required to assume a definite shape. *Θυμός* is not suited to fulfil the functions now demanded of the soul, for although the *θυμός* leaves (of its own accord) the bones, there is small hint of its continuing to exist when the body has been destroyed;¹ nay, as we have seen, sometimes it is distinctly said to be itself destroyed. For something to which a clear notion of a separate existence should attach, men required an idea more distinctly physical than *θυμός*, something which had an existence in experience as well as in thought. The something which they chose was the breath. According to the opinion universally received among the Aryan nations, and perhaps by most of the nations of the world, the vital principle (or, as we say, vital spark) was concentrated in, *was* in fact, the breath of the body. *Ψυχή* is therefore only one of a large class of words, all of precisely similar origin, around which substantially the same beliefs grew up. *Ψυχή* is allied to *ψύχω* to breathe; in Sanskrit we have *âtman* soul, in Latin *animus, anima*; all three derived from original roots *an, anti*, breath, and allied to the Greek *ἄω, ἄημι*, as well as to *ἄσθμα*, a heavy breathing. *Spiritus* has the same meaning; it is allied to the Slavonic *pachu* odour, *pachati*, to blow; the German *Geist*, and our *ghost* are probably in part onomatopoeic, and suggest by onomatopoeia the action of breathing: etymologically, they would appear to have a somewhat wider significance than *ψυχή* and *âtman*, and to image the life or spirit as the *air* of the body, not as the *breath* simply, which properly means only the air of the mouth. *Gischt, Gäscht*, froth, witness to this wider sense.

We might very well always translate *ψυχή* as *breath* in Homer; but if we do so we must be prepared to make allowance for the myth which grows up around the conception. Like the vital spark itself, the breath is seen to depart when the man dies; in the most distinctly physical use of *ψυχή* which we meet with in Homer, it is said to pass the *ἐρκος ὀδόντων*, the hedge of the teeth,² and when once it *has* passed this bar, it can

¹ Only in one passage, see p. 482.

² ἀνδρὸς δὲ ψυχή πάλιν ἐλθεῖν οὐτε λείσσει
οὐδ' ἐλετή ἐπεὶ ἄρ' κεν ἀμείψεται ἐρκος ὀδόντων.—Il. ix. 408.

hardly be brought back again. It has gone; but whither? The purely negative answer would be, it has disappeared; and so long as we are dealing with the world of the living, this is all we are required to assert. The following passages may be cited—among a hundred others—as giving a good idea of the *ψυχή*, regarded as a distinct entity, but still as a passive one: *Il.* v. 296; viii. 123, 315, &c.—*τοῦ δ' αἰθεὶς λύθη ψυχή τε μένος τε*, a very common use in Homer. The man's *ψυχή* (breath) and his strength are here described as loosened or relaxed (the same phrase is very frequently used of a person's *knees* when he is killed), the idea being perhaps that the breath or vital principle is knit up in him while alive. Here is another example: *σὴν δὲ ψυχὴν ἀφέλωμαι* (*Il.* xxii. 257), "If I take away thy breath" (= life), one of the most common uses in Homer. The distinction between *ψυχή* and life—the former being an entity, a substance almost, the latter being an abstraction,—is shown in the employment together of *ψυχή* and *αἰών* (*Il.* xvi. 453; *Od.* ix. 523). *Αἰών* is life as an abstract idea, and so it is to *ψυχή* very much what *νοῦς* is to *θυμός*. The *ψυχή* is still passive in such a passage as *Il.* v. 654, (thou shalt) "give glory to me and thy soul (*ψυχὴν*) to horse-renowned Hades". Or in that opening passage of the *Iliad* wherein Achilles's anger is spoken of as sending many souls (*ψυχάς*) down to Hades. This notion is already an advance upon the purely negative one, that the breath has disappeared. Mythology first substitutes for this expression the allied one, that the breath has gone to the unseen *place* or the concealed *place*; the Greeks said to *Ἄϊδος* (*A-eidos*); our own ancestors said to Hel (from Icel. *helja*, to hide). Before the time when we first meet with either Hades or Hel, they have ceased to be places and have grown to be persons; and the idea of a kingdom of the dead over which they rule has been developed into a quite definite myth. It results from the development of the myth of the Hades-kingdom that, when we are no longer dealing with the upper world, and come to be concerned with another, the *ψυχή* assumes a distinct personality. The active sense begins to creep in when the *ψυχή* is spoken of as (of her own power it seems) leaving the body (*cf.* *Il.* vii. 330, &c.), and the full individuality of the *ψυχή* has been reached when, as in the case of the deaths of Patroclus and of Hectôr, we are told (*Il.* xvi. 857; xxii. 362)—

*ψυχή δ' ἐκ ρεθίων παμένη Ἄϊδοςδε βεβήκει,
ὃν πότμον γούωσα, λιπούς ἀνδρότητα καὶ ἥβην*

"The *ψυχή* flew from his limbs and went to Hades, bewailing

its fate, leaving behind it (*ἀνδρότης*) its (or *the*) human nature and youth."¹

This is the nearest approach to a myth which we get while we are dealing with the living world, *i.e.*, so long as we are dealing with the *ψυχή* in its actual manifestations. When we descend to Hadēs or from any side enter the *other world*, the mere meaning of *ψυχή* is complicated with what mythology may have to tell us concerning the nature and the life of incorporeal spirits; and though the actual meaning of the word, and the mythic nature of the thing, run so much into each other that they cannot always be kept apart, we must yet guard ourselves, as much as we can, against confounding them. If the breath be now conceived as having a quite separate existence, and if any speculations arise as to the nature of this state, it is clear that the very slight *phenomenal* existence which belongs to the *ψυχή*, by right of its name, must be eked out from some other phenomenon. What then are the phenomena which next to the breath have suggested to mankind the idea of a second individuality beside that which is bound up with his body? Three have been specially influential in this manner, namely, the *shadow*, the *reflexion* (in water), and the *image* seen in *dreams*. These form an ascending scale, so far as regards their *apparent* phenomenal existence: the shadow is the shape and nothing more; the reflexion has the shape, the colour, and the garments of life; the dream-figure, in addition to the possession of this bodily resemblance, can hear and speak.

The forms in which these ideas are presented to us in the Greek, whenever they come to image the departed soul, are *σκιά* and *εἶδωλον*: *ὄνειρος* occurs sometimes as *seeming* to represent a ghost, but of its use actually to signify a departed spirit we cannot be sure.² Among the three ideas, shadow, reflexion, dream-image (which, it has been said, are in an ascending scale of apparent reality and apparent separate individuality), it would be natural to expect that the division between the first and second would be broader than that between the second and third. For though the reflexion cannot speak audibly, still it can apparently listen, and it can open its mouth. It might well have been thought that the disabilities in the way of a communication between man and his reflexion were not inherent in the latter; so that the idea would be, that the

¹ *ἡβη*, agreeably with what was noted concerning *fear*, *plague*, &c., is imagined as a distinct being, not as a *state*.

² *ὄνειρος* certainly cannot be reckoned among the Homeric synonyms for 'soul'.

reflexion came and spoke to men in sleep, but could not speak while the original of the reflexion was alive and awake.

It cannot, however, be asserted that the *εἶδωλον* is ever meant by Homer to include the reflexion; I find that the word *σκιά* is undoubtedly used to signify reflexion;¹ though not, so far as can certainly be proved, by Homer. We must be content, I think, to leave in some doubt the apportionment of the three ideas between the two words. But we must credit *εἶδωλον* with generally signifying the *image* in the fullest degree in which it could be realised, that is to say the image seen in dreams. When *σκιά* is introduced, it expresses the extreme unsubstantiality of the dead. Two passages may be quoted which illustrate the use of *σκιά* in connexion with the other words which are discussed in this paper. In the first, Kirkê directs Odysseus how he must go to the house of Hadês, and how when there he must consult the *ψυχή* of Theban Teiresias (*Od.* x. 492, &c.), "a blind seer, but one whose understanding (*φρένες*, pl.) is firm (still attached to his *ψυχή*) to whom, even though dead, Persephonê has left his mind (intelligence, *νοῦς*) that he might be wise; but the rest flit about, shadows"—

*ψυχῇ χρησομένους Θηβαίου Τειρεσίου
μάντης ἀλαοῦ, τοῦ τε φρένες ἐμπεδοί εἰσι·
τῷ καὶ τεθνηῶτι νόον πόρε Περσεφόνεια
οἷφ' πεπνύσθαι· τοὶ δὲ σκιαὶ ἀΐσσουντι.*

The second passage occurs when Odysseus has been conversing with the *ψυχή* of his mother Antikleia (*Od.* xi. 204, &c.), and at the end of their converse, the narration goes on: "She spake, and now I, pondering with my understanding (*φρήν*), desired to lay hold on the *ψυχή* of my dead mother. Thrice I essayed, and my whole soul (*θυμός*) urged me to embrace her. But thrice from my hand like a *shadow* or even a *dream* (*σκιῇ εἶκελον ἢ καὶ ὄνειρῳ*) it flew away. And sharper grief arose in my heart; and to compel her I spoke with winged words: 'Oh, mother, why stay you not for me to lay hold on you; that even in Hadês we two, folded in each other's arms, might have (some) happiness (even) in our grief? Has great Persephonê then sent me only a semblance (*εἶδωλον*) that I should weep the more?' So I said; and my honoured mother straight answered: 'Alas! my son, wretched more than all other men. Persephonê has in no way deluded thee. But this is the state of mortals after death. Their nerves no longer hold the flesh and bones' (or, 'they no longer

¹ Pausanias, ix. 31, § 6, speaks of the *σκιά* of Narkissus.

have nerves holding the flesh and bones'), 'for these the strong force of fire has consumed, what time their *θυμός* first left the white bones. But their *ψυχή* flying, flits about (flits aimlessly about) like a dream (*δνειρος*).'

We lose the full force of this imagery if we allow our thoughts to dwell upon the feebler reflexion of it in later writers. Later poets may use words like these in an unreal sense; but with Homer the picture is a perfectly definite one. When Pindar calls man a *σκιᾶς ὄναρ*, dream of a shadow, when Æschylus speaks of the *εἶδωλον σκιᾶς*, each is speaking the language of poetical half-belief. When *σκιᾶ* appears in Homer, it is with a full sense of its thinness and unsubstantiality; but it is still thought of as a positive entity.

The *εἶδωλον* or dream-image renders most accurately the mythic notion of the soul, that is to say, the soul as it is imagined to be actually appreciable by the senses, when, on rare occasions, it appears on earth (*e.g.*, *Il.* xxiii.) or on the occasions, rarer still, in which a living man has descended to the realm of the dead (*Od.* xi.). Thus, as has been said, in this mythic state the *ψυχή* becomes identified with the *εἶδωλον*. To Achilles when asleep comes the *ψυχή* of Patroclus, "like him in all things, in size, in its beautiful eyes, and its voice, and with like garments on" (*Il.* xxiii. 65). Sometimes in accounts of ghosts, such as these, *ψυχή* and *εἶδωλον* seem convertible terms, as in *Od.* xi. 51 and 83, when the soul of Elpénor is first called his *ψυχή* and afterwards his *εἶδωλον*, and in *Il.* xxiii. 72, where we are told that the *ψυχαί*, *εἶδωλα καμόντων*, "the breaths, the images of the dead," keep Patroclus from entering Hadès' realm; but in a neighbouring passage to this last, we see that they are not identified. Achilles exclaims—

ᾠ πόποι, ἦ ρά τις ἔστι καὶ εἰν Ἀΐδαο δόμοισιν
ψυχή καὶ εἶδωλον, ἀτὰρ φρένες οὐκ ἐνὶ πάμπαν,

"Alas, there is in the house of Hadès a breath and image," &c.

Shortly before we have been told that the *ψυχή* of Patroclus went into the ground like smoke (*ἥντε καπνός*), an image well suited to the breath (especially if we extend this idea by taking in the smoke which is as it were the breath of the funeral pyre)¹ but not to the *εἶδωλον*.

We never hear of the *εἶδωλον* leaving the body as the *ψυχή* does. There is not, it would seem, a link during life-time between the man and his *εἶδωλον* as there is between the living

¹ See what is said below of the etymological meaning of *θυμός*. I have treated the mythical side of this belief more fully in an article in the *Contemporary Review*, October, 1879.

man and his *θυμός* or his *ψυχή*. A question, indeed, arises as to whether the *εἶδωλον* exists while the man is still alive. It ought to do so: because the image of a living man may be as well seen in dreams as the image of a dead man. We might suppose that, "as echoes of man's speech far in secret clefts are made," the body was supposed to have a shadow living in some special home appropriate to these unsubstantial creations. But this theory does not quite square with the fact that when the gods wish to make use of images of living men, as Apollo of *Aeneas*,¹ *Athênê* of *Iphthima*,² they *make* them, and do not call them from their home. In spite of these two instances, however, it is hard to believe that, in ordinary cases, when a man dies, where nothing is said of divine interposition, his *εἶδωλον* comes into existence, not having existed before.

This question, however, hardly lies within the limit of the present inquiry, which is, not to trace out the myth of the soul and of the other world, but merely to trace, as far as possible, the distinctive ideas which the Homeric Greek attached to each of the four words we have been discussing. We may now rapidly survey the chief points which have been established.

Of the four words, *θυμός* alone is divorced (for the Greek) from any experiential significance. The curiously close connexion between the Greek *θυμός* and the Sanskrit *dhuma*, smoke, the Latin *fumus*—its connexion, too, with the Greek *θύω*, to burn, offer, *θύελλα*, storm, Goth. *darnis*, storm—might lead us to doubt whether *θυμός* itself had not once a physical significance not dissimilar from that of *ψυχή*. But for the Greek the physical side has been altogether lost. And as it has thus disappeared, the *θυμός* does not lend itself to any myth arising from the belief in the persistency of the soul in a future state. Though this *ego* is a distinct entity, it is so much bound up with the body that it can *scarcely* be imagined separate from it. I can only recall one passage in which the *θυμός* is said to descend to the house of *Hadês*. It occurs in *Il.* vii. 131, and is for its singularity worthy of notice. *Peleus*, says *Nestor*, if he heard of the defeats of the Greeks, would pray that his *θυμός* might go down to *Hadês'* home (*θυμὸν ἀπὸ μελέων δύναι δόμον Ἀΐδος εἶσω*). The *ψυχή* is more physical than the *θυμός*; and, while we are still upon the upper earth, serves well to express the soul as a *vital principle*. When, however, we pass to another world, the *ψυχή* alone would be too unsubstantial to allow the growth round it of any mythology, and so we pass on to the *doubles*, the shadow (with which latter is perhaps identified the reflexion) and the dream-image; and to these ideas attaches the Homeric mythology of the

¹ *Il.* v. 449, *sq.*

² *Od.* iv. 795, *sq.*

other world, as we may read it in *Il.* xxiii. and *Od.* xi. and elsewhere.

I may say in conclusion that the above essay is entirely without controversial object, and, as I conceive, is without controversial value. Seeing that this kind of inquiry is of a purely scientific character and aims to establish for itself strict laws of research, all chance of a useful employment of its methods would at once disappear, if words came to be arbitrarily severed from their usual significance to favour any previous theory. In calling *θυμὸς* and the rest equivalents for soul, I do not wish to premise anything concerning the entity which the word soul is supposed to connote; nor to use that word in any other senses than those which I believe usually attach to it. And concerning the belief in the existence of the soul separate from the body, that belief, it is obvious, rests upon certain ontological premisses, which are in no way affected by what inquiry may show are the experiential notions which have been associated with the ontological conception. The immortality of the soul is the persistency of the *ego*; our view regarding the doctrine depends really upon our theory of the *ego*, that is, upon the relative weight we attach to the premisses and arguments of ontological and of experiential philosophy.

C. F. KEARY.

III.—G. H. LEWES'S POSTHUMOUS VOLUMES.

AT the close of a life largely devoted to research and speculation the late George Henry Lewes began to publish his most general and important conclusions in a series of volumes entitled *Problems of Life and Mind*. The first two of these laid the "Foundations of a Creed," by expounding the method of science, the limitations of knowledge, the conditions of inference, and the categories of matter, force, and cause. In the third volume the "Physical Basis of Mind" was discussed and illustrated; and that unhappily was as far as this remarkable series of disquisitions proceeded during the life of the author. Amongst his papers, however, remained some materials for subsequent volumes: and accordingly a small one on *The Study of Psychology* appeared early in 1879, and later in the same year another, larger, but unfinished and fragmentary, dealing with certain more special psychological questions. These last two volumes form the subject of the present article: they would have been reviewed in *MIND* much earlier but for unavoidable delays.

The merits and defects of the earlier volumes of the series belong also to the later. When the first problems appeared it was often complained that the author's philosophical position and purposes could not be distinctly perceived. The studies undertaken in connexion with his *History of Philosophy* seemed to have rendered him too desirous to reconcile his own view of the world with incompatible doctrines, and to strengthen his position by the prestige of remote alliances. Such a disposition accompanied not unnaturally an inclination to excessive controversy with neighbouring systems, and to a loosening of native relations rarely healthy and rarely successful. At the same time, in spite of an instructive section on "Rules of Philosophising," the method pursued was wanting in the coherence and precision suitable to the subject; and a somewhat literary and cursory mode of treatment gave rise to apparent contradictions and other impediments to comprehension. Compensating this, however, there were always vivacity of thought and felicity of illustration, the talent of marking suggestive topics and of pointing to unsuspected vistas of speculation. Such was the prerogative of a man to whom no region of inquiry was unfamiliar. Everyone who opened his book might profit, and he who read with sympathy read with pleasure.

The sympathies of the student of psychology who reads these last volumes are liable indeed to be estranged by the author's way with psychology and psychologists. His attitude towards these unfortunate butts of the positivist's ridicule, to some of whom more than to anyone else positivism owes its existence and its strength, does not much differ from that of Comte and, to be sure, with the proper adjustments was much more timely fifty years ago, while at any time more becoming to almost anyone than to Lewes. They are, he says, still without agreement in doctrine or method, divided into schools with leaders and party-cries: one is for Locke, another for Kant. Hence he declares at the outset that Psychology remains to be constituted: for "the constitution of a science means (1) that *circumscription* of a class of phenomena which, while marking its relations to other classes, assigns it a distinctive position in the series of the sciences; (2) that *specification* of the object and method of search which, when aided by fundamental inductions established by experiment, enables all future inquiries to converge toward a self-sustaining and continuous development". It might however be plausibly maintained that a continuous development has in fact, without any such explicit and formal constitution, been sustained from Hobbes to Spencer: and it is manifest that a considerable development of any science must always precede its formal constitution.

The above quotation indicates generally the scope of these volumes which aim at constituting Psychology. *The Study of Psychology* comprises discussions of the motives for studying that science; its definition; and its method of investigation: the remaining volume, fifth and last of *Problems of Life and Mind*, is for the most part an exposition of certain fundamental inductions.

As for the motives to this study it is enough to say that the author recognises both a speculative and a practical interest. The speculative is partly theological, and partly the special impulse of scientific curiosity: motives which, though indirectly practical, are nevertheless broadly distinguished from the direct practical interest which mental science derives from its bearing on education and government.

The definition of Psychology, drawn up by Lewes with great care, calls for more consideration: it is, he says, "the analysis and classification of the *sentient functions and faculties*, revealed to observation and induction, completed by the reduction of them to their *conditions of existence* biological and sociological". And we are told that in thus making Psychology the science of the facts of *sentience* rather than of *consciousness* there is the double advantage of ranging it "under the general science of life, and of rescuing many phenomena from the ambiguity arising when they are unconscious". We find in fact that three important questions spring from the first part of the above definition: as to the relation of Psychology to Biology; whether neurility and sentience are identical, or are cause and effect, or what other relation subsists between them; and whether there are sentient states of mind themselves unconscious, but necessary to the explanation of conscious states.

In answering the first of these questions the author has a manifest desire to adhere as closely as possible to Comte, but cannot adopt his views without extensive modifications. Psychology is, he says, a branch of Biology, treating not of all vital but only of sentient phenomena. But he admits that it is dependent for a part of its data upon introspection, and even that all those modifications of the organism, both objective and subjective, which, subtle and obscure, are due to experience, and make no part of our native and common endowments, must for the present at least be interpreted subjectively. Nay, he goes so far as for the present to restrict Psychology to the phenomena of the human mind, "partly because of the supreme interest of human phenomena, and partly because we can less easily understand the mental phenomena of animals".

Whilst coming to such conclusions himself, he takes occasion to examine the views of the same subject which have been

published by J. S. Mill and by Mr. Spencer. His criticism of Mill is based upon an insufficient comparison of passages. Extracts are unduly dwelt upon which suggest the possibility of some mental states being wholly independent of bodily states; but whoever considers the whole drift of ch. 14, b. vi. of the *Logic*, and ch. 15 of the *Examination of Hamilton* must perceive Mill's real opinion to have been that there is probably a thorough-going correspondence between all mental states and some bodily ones. And indeed his view of the relation between Psychology and Biology differed little from Lewes's own. He seems to have thought Psychology presumptively a department of Biology, but best regarded as an independent science, so long and so far as it comprised laws of mind not connected by induction with laws of the bodily organism: not connected by induction, I say; for that one sort of these laws could ever with propriety be said to be derived from the other (as Lewes is apt to say), Mill would always have denied. And in this tentative delimitation of the two sciences he set as usual an example of circumspection and caution.

The attack on Mr. Spencer's view of the position of Psychology begins by attempting to obliterate the line he draws between that science and Biology, on account of the more explicit reference contained in psychological propositions to correlations in the environment. But the result is little beyond Mr. Spencer's own admission that the two sciences "are not demarcated by a sharp line". The same author's further distinction that Psychology alone deals with facts furnished by self-analysis, is met by the statement that "we cannot separate Psychology from the other sciences on the ground of its phenomena being feelings. . . . All sciences deal with feelings. Psychology alone deals with them in their subjective aspect." As if any other distinction than this had ever been intended! Again, according to Mr. Spencer, "the thoughts and feelings which constitute a consciousness are absolutely inaccessible to any but the possessor of that consciousness". It would perhaps have been better to say that one consciousness is never directly accessible to another; but the intention plainly is to deny the possibility not of inferential but of intuitive knowledge of another consciousness. Lewes, however, meets it by shewing that inferential knowledge of another's thoughts is possible!

Futile polemic is not prepossessing in these busy days; and I would not have noticed these specimens of it, had they not been too characteristic of the work in which they occur, not only by their want of care, which is excusable in an unfinished production, but also by the anxiety they reveal to make a position of independence and originality against everyone, with

the honourable exception of Comte. Clearly our author had at this point no very material difference from those upon whom he animadverts; and therefore how much better to say, 'Here are two inquirers with whom I am happy to agree, which raises some presumption of the truth of our common doctrine,' rather than—'Here are two from whom I shall rejoice to diverge if by any ingenuity I can accomplish it, though thereby increased suspicion attach to all three!' In *Metaphysics*, indeed, since the paths of error are many and devious, ingenuity thus exerted is seldom unsuccessful; and perhaps the confused history of that subject hitherto is misleading both as to the ease of originality and as to the ideal of the scientific inquirer. But it is impossible that Science worth the name can have a similar history. Conspicuous originality can be possible only in the infancy of science; and perhaps an eager desire of it will not characterise the maturity of the human mind.

Upon the relation of neurility to sentience Lewes's opinion, though his language wavers slightly, is pretty well known to be on the whole, that they are identical or "two aspects of the same fact". The doctrine has appeared in more than one of his earlier writings, in the first and second volumes of *Problems of Life and Mind* (where, by the by, most of the important positions of these later volumes were hinted at), but most explicitly in the third volume, *The Physical Basis of Mind*, which was reviewed in MIND IX. by the Editor: I shall therefore treat this point the more briefly. The speculation is advanced as a means of being rid of Dualism, that mutually exclusive opposition of Body and Mind, which has occasioned so much anxiety to modern philosophers by having been stated at the outset in such a way as to raise the difficulty and keep it at a maximum intensity. By accepting Lewes's suggestion we may now call Body and Mind, or neurility and sentience, not different things, but the same thing differently viewed, two aspects of the same fact: feeling, we may say, is a neural process, and a neural process is feeling—one fact regarded now subjectively and now objectively. We shall thus avoid that task of explaining the apparent interaction of Body and Mind in sensation and in volition, which has bred hypotheses with such amazing fecundity. In affirming the identity of neurility and sentience, Lewes means to deny that they ever stand to one another as cause and effect. Cause and Effect, I understand him to argue from another point of view, are also identical; to distinguish them is a logical artifice; the effect is nothing but the meeting of its conditions, *i.e.*, its cause: and, if so, sentient states cannot be, as popular science assumes, the effects of neural processes.

But perhaps Dualism is preferable to such modes of surmounting it even if more successful than the present seems to be. The idea of Dualism, whatever its origin, rests at present upon the empirical contrast of objective and subjective phenomena. This contrast was formerly supposed to indicate a correlative transcendent contrast; and in some systems the indication was declared to be illusory, and a transcendent unity posited instead. Since Kant, however, or rather, since Hume, it is wonderful that anyone should have thought it possible to find, or a serious exercise to seek, for the problem of reducing Dualism to Monism, any but an empirical solution. The empirical contrast can only be brought to empirical unity; and that, if it can be done at all, must be by finding for objective and subjective phenomena some common ground or element. Instead of this, however, Lewes (and many a kindred system from which his but verbally differs) leaves the empirical contrast, the "two aspects," and merely assigns them to "the same fact": which as it is not empirical, is unknowable and transcendent,¹ a subterfuge of the pre-Humean type; and whether it exists or not, who knows? Such atonement of Dualism seems to be made in mockery of Hume; but it remains to be seen who will laugh last.

Nor does the identity of neurility and sentience gain any support from the author's peculiar doctrine of Causation. Cause and effect, he says, are never different things: but here again he admits that they are "two aspects of the same phenomenon"; and this empirical difference between cause and effect may correspond with the empirical difference between neurility and sentience. If so, neurility and sentience may empirically be cause and effect; and this is probably as much as the popular view requires. The difficulty connected with the causation of consciousness, has two stages: the causation of particular states of consciousness, and the causation of consciousness in general. At the first stage, according to the common view, the difficulty arises in this way: whereas in ordinary cases of physical causation the activity of the cause, regarded as motion, is absorbed without remainder or further consequence in the effect, it

¹ Such at least is the interpretation which reserves most meaning to the assertion that a neural process and its mental accompaniment are the same fact. But on a reconsideration of various passages—especially *Problems*, II., iv., 4—his view appears rather to be that the concomitant neural and mental changes are both modes of the same general fact of Feeling. The mental change is of course feeling, say, Fear; and the nerve with its changes may be metaphysically resolved into possible feelings, optical, tactile, &c.: but are these "the same fact"? We may as well call Asia and America identical, or two aspects of the same fact: to wit, of the same planet.

appears that in the exceptional case of certain nervous movements there is, besides further movements, which might alone absorb their efficacy, another additional consequence, namely, Feeling. This seems anomalous: but nevertheless Hume's answer seems sufficient, that all we know of Cause and Effect is learnt by experience, and if in the same way we learn that mental states are the effects of bodily ones, we must accept it. The admission, however, that each state of consciousness is the effect of some bodily state leads at the next stage to the inference that consciousness in general may be similarly explained. But, natural as this conclusion may be in Cosmology or the scientific history of the world, the Metaphysician cannot but observe that the 'causation of consciousness in general,' requiring us (as it does) to form a consciousness of something preceding all consciousness, is a phrase intrinsically absurd. Hume's solution then of the above anomaly has only departmental validity; the general problem remains an excuse for reiterated speculation. But two conditions seem to be imposed upon any sound solution: that it must be empirical or in terms of experience, and that it must be a generalisation. All Spinozistic solutions have the appearance of generalisation, but without the reality, because not in terms of experience.

Lewes's conclusion, then, that neurility and sentience are identical, is not strongly recommended by either of the reasons given for it. But, granting the conclusion, it would certainly follow that many sentient states are unconscious; for we are unconscious of far the greater number of nervous changes, and they must all be sentient. To limit Psychology to the facts of consciousness would be, the author says, to exclude unconscious intellectual, sensational, volitional processes, in short, "the greater part of our mental life". No one would wish to make such an exclusion. Whether there are states of the organism themselves unconscious but from the scientific point of view necessary to the explanation of consciousness, is scarcely disputed; but are these unconscious states sentient and mental? The question is partly verbal. The author extends with painful straining many names of subjective phenomena, such as 'sentience,' 'sensibility,' 'consciousness' to the objective department, or what is usually considered such: to which by much reiteration they seem gradually to communicate a sort of subjective tinge. He is aware of the strange uses to which words are thus put; but to Mill's objection that 'unconscious feeling' is something very like a contradiction, he replies that "that depends on the definitions". Besides ambiguities and the doctrine of the identity of neurility and sentience, I do not know that any

other argument is offered except this—"that nervous tissue is the same throughout, in property as in structure"; so that sentience, being admittedly a property of nervous tissue in some tracts, must be so in all, though for the most part unconsciously. Another form of the same argument is that neural processes, though unconscious, must be sentient, because they occur in a sentient mechanism. Hence a decapitated frog is perhaps unconscious, but its movements are for all that directed by feeling. Indeed you see that they are so, Lewes says, because they so closely resemble the movements of a frog with its head on. Every man believes that other men and at least the higher animals have feeling because they behave much like himself: the same argument applies to the decapitated frog. If one objects that the conditions have been altered by beheading, and that many facts suggest the localisation of consciousness in the brain, the answer probably is that nervous tissue has the same properties throughout.

Whether this is the case experimental physiologists must determine in a physiological sense. Only let us hope that, whatever their conclusions may be, they will not call an unconscious something by a name that connotes consciousness. It would be better to invent any number of new names than to retard our escape from Babel. For psychological purposes, however, it may be doubted whether the problem is rightly taken up when it is made a question whether unconscious feelings exist. Admitting such things to be possible, their actual existence is not important in the same way as that of material imperceptibles, such as the luminiferous ether: since subjective feelings are not credited with perdurability, or identity in successive several experiences; they do not stand in the relation of primary to secondary qualities. In short, they have not those attributes which mankind as well as men of science generally agree to accept as the basis of explanation: it is usually enough that they have existed, or even that they might have done so. To the psychologist, therefore, the question is not so much whether unconscious feelings exist, as on what conditions feelings become unconscious, and nervous stimulation fails to excite consciousness. The existence within the organism of seats of consciousness other than that which we identify with ourselves, is not absurd but is unverifiable; the existence of unconscious feelings in the empirical ego is not only unverifiable, but as to the form of statement absurd. But it is a question of the utmost interest upon what conditions feelings are frustrated or become unconscious: whether they are overpowered by others, or decay with age; or disappear from trains of memory or habit by rapidity of transition; or are submerged, subordinated, and

transformed during the growth of intuitions. The laws of frustration and obliviscence, and of the revival of associated ideas in spite of obliviscence connexions, must always, even because they are laws, be a more interesting and a more hopeful subject of investigation than the bare existence of entities so ill-adapted to positive inquiry as unconscious feelings seem to be.

We have now briefly discussed Lewes's definition of Psychology and the questions arising from the first part of it, and we come to a subject which may be connected with the second part of the definition, namely, his view of the science's method of investigation, which may be described as a combination and comparison of three lines of inquiry, the Introspective, the Biological and the Sociological.

The admission of Introspection has already been mentioned as a point at which Lewes diverges from Comte; and he defends it against both Comte and Kant: whose paradoxical denial of the possibility of a faculty which every person exercises, is only comparable with the denial of the possibility of motion which is a property of everything. It would have been more excusable, had it been contended "that observation of external phenomena was impossible, because they could only be observed through the internal changes they produced". "Introspection is observation," he argues, and both it and external observation are modes of feeling which must be referred to the same sensorium; their modality is due to the modes of stimulation; and "whatever place is assigned to observation in scientific method must be assigned to Introspection". Nevertheless, whilst Introspection is essential to Psychology, alone it is inadequate: for it is, as Kant observed, *inexact*; it cannot deal with unconscious mental states; and it cannot directly reach the subjective experiences of others, without which Psychology must lose the name of Science and become no more than the natural history of individual minds.

But in spite of all that our author has written on this subject his view of the position and worth of Introspection is imperfectly clear. When he declares that although such a source of information must be admitted the method of the science does not on this account differ from that of others, meaning that its basis must still be inductive, the contention seems either to be superfluous or to imply a confounding of introspection with simple inspection, as if he were thinking of those writers who, having adopted first principles upon simple inspection, have thence proceeded to a facile deduction of the universe. But, on the other hand, he is plainly aware that true introspection is a method of observation and induction; and, indeed, it may be maintained that methodical introspection has done more

than anything else to dissipate what Mill calls *à priori* fallacies of simple inspection, and to discredit the spectral philosophies that seemed to embody them. Sometimes again he surely attributes too much power to introspection; as when he supposes it to give us assurance of the control of the will over our movements, that is to say, that feeling as such is a cause of movement; which is one of the arguments he relies on to refute the doctrine of animal-automatism, in spite of the argument's apparent incompatibility with his own doctrine of the relation of sentience to neurility. But the exposure of the futility of such a pretended consciousness is as old as Hume. At other times he gives Introspection less than its due, attributing to it various illusions—the notion of a double consciousness suggested by the struggle of higher and lower motives, and the dogma of free-will. Yet in a chapter entirely occupied with the refutation of this latter dogma his own argument is based essentially upon introspection, and only accompanied by a parallel biological explanation manifestly suggested by introspection. In fact neither Biology nor Sociology, though lending valuable aid, is needed to establish moral causation. It was not in reliance upon these sciences that Spinoza and Jonathan Edwards denied the freedom of the will. The question seems to have had a theological origin: it did not arise from introspection; nor so far as my own observation goes does introspection afford it any excuse. A sounder objection to introspection is that it gives us no knowledge of the subjective experience of others; but we may reply that there can be no such knowledge without it. However to this end self-introspection be supplemented, it cannot be dispensed with. One supplementary method is that adopted by Mr. Galton, to collect the subjective experience of as many other people as possible. But that can only be done by inducing them to resort to introspection. Or if we seek to infer the feelings of others by observing their conduct, this involves the supposition that when they act like us they feel like us, and what that is we know by introspection.

However, no one now contends that Introspection is alone sufficient for Mental Science; and the need of assistance from Biology has long been recognised. In these volumes, needless to say, the importance of such assistance is not overlooked, but neither is it at all overrated. The author warns us against relying on current systems of nervous physiology whose theories are usually no better than provisional hypotheses. "Much of what passes for physiological explanation of psychological processes is simply the translation of those processes in terms of hypothetical physiology." Nor if our physiology were more trustworthy would it take us far, he says, in the explanation of

the human mind: it could only suffice for Animal Psychology; and, amidst the increasing belief, which comes with the doctrine of evolution, in a community between animal and human life, we must guard against supposing the resemblance to be greater than it is. Lewes had begun to prepare himself for the systematic study of man by a preliminary study of animals, but found himself "constantly thwarted by fallacies of anthropomorphic interpretation," which could not be eliminated "until a clear outline of the specially human elements was secured". The resemblance, such as it is, belongs to the "functions" of men and animals, that is to the older, simpler, and more permanent activities of the organism; but incommensurable divergencies arise in the human being with the progressive acquisition of "faculties," that is, of the more recent, complex, variable, and modifiable activities which depend upon the power of profiting largely by experience, or upon educability. Even the older functions are far from being the same throughout organic life: we cannot, he says, properly call a bee angry, or even attribute foresight to a fox. He agrees therefore with those who, in opposition to Mr. Darwin, insist that man is separated by an impassable barrier from all the lower animals. This is chiefly due to human society and to the great social acquisition, Language. "Language enables Man's intelligence and passions to acquire their peculiar characters of Intellect and Sentiment." Hence though the psychology of animals is simpler than that of man, it is less intelligible to us; and the methodological rule to proceed from the simple to the complex, is not so trustworthy as the older rule to proceed from the better to the less known, or from the known to the unknown.

But reasonable as it is to suppose that animal consciousness is very different from our own, there must be so much resemblance as to render Comparative Psychology an invaluable guide through many problems; as, for example, the order of the development of emotions, their classification, and consequent deductions in Ethology and Education. Moreover it is not only that an animal's mind is simpler than our own, but the simplicity of the environment in which it acts, and in relation to which it is what it is, gives it the comparative isolation so desirable in study and so difficult to obtain in studying mankind. Such obvious considerations Lewes cannot have overlooked; but his habit of substituting the suggestiveness of an essay for the comprehensiveness and precision appropriate to the treatise, led him to dwell only on what seemed most novel or important, instead of giving the complete and systematic account of biological data and applications which was to be looked for from a man so intimate with the subject in a work

expressly on the Method of Psychology. The same complaint must be made of the treatment of what our author probably regarded as the most important contribution he had to make toward the study of the science, and in making which he in fact considered himself to have for the first time constituted it.

We have seen that both Introspection and Biology are for different reasons unsatisfactory and inadequate aids to the explanation of the Human Mind: they must be supplemented by some further means, and this is found in Sociology. "Man is a social animal—the unit of a collective life—and to isolate him from Society is almost as great a limitation of the scope of Psychology, as to isolate him from Nature. . . . The profound differences which distinguish man from the animals can be shewn to depend on the operation of the Social Factor which transforms perceptions into conceptions and sensations into sentiments. . . . Without Society no need of Language. . . . Without Language no Tradition; . . . without Tradition no Religion, no Science, no Art." These quotations are from ch. iv. of *The Study of Psychology*: in ch. viii. he illustrates his meaning by sketching the development of the Moral Sense under social conditions, and points out the important data afforded by History. "We may term History an experiment instituted by Society, since it presents conspicuous variations of mental reactions under varying social conditions," and exhibits the evolution of the Sentiments, Science, Art, and (in a word) of Culture or the General Mind. To expounding his conception of the General Mind, the whole of ch. ix. is devoted. The existence of such an influence "is implied in the familiar use of such terms as *the Mind*, *Common Sense*, *Collective Consciousness*, *Thought* (*Das Denken*), *Reason*, *Spirit of the Age*, &c. Obviously these terms indicate something over and above the individual mind, transcending its limitations and correcting its infirmities. . . . Language belongs essentially to the community by whom and for whom it is called into existence. In like manner Thought belongs essentially to Humanity. As every spoken word presupposes an intelligent hearer, so every conception implies an impersonal Reason representing relations that are essentially impersonal." If, however, any empirically-minded reader shudders at these words and suspects the approach of mysticism,

"Of Night primæval and of Chaos old,"

he will be reassured on turning the page, and finding that "impersonal" in the last sentence meant little else than indifferent or impartial. For we read—"The abstraction Mind, once extricated from the concrete facts of Sentience, is by

logical necessity immaterial, simple, one; for it is a symbol, like Virtue, Number, Cause, &c. As a symbol it has concrete realities for its significates; but this does not suffice for those who, having personified the abstraction, accept it as a *res completa*, . . . and thus the world-process has been assigned to a Soul of the World." Here the transcendently-minded reader will perhaps be disappointed: and he has my sympathy; for why, since Language belongs to the community, should the style of mysticism disguise such an innocent meaning? The General Mind seems to mean no more than Culture in all its aspects. But, if so, its relation to Psychology is very ill-defined. Some expressions imply that it is the object-matter of Psychology; but on the whole it is best to understand Lewes to mean that the common nature of human minds is the object-matter of Psychology, and that the influence of the General Mind upon individuals is an important datum for the study. Still the mode of its operation upon the individual is not explained with any fulness; and even the way in which the extent of its influence is described amounts to not much more than an expansion of Comte's remark, duly quoted, that in human history "the Past more and more dominates the Present". Probably in the continuation of the work in subsequent volumes the author intended to work out this conception with comprehensiveness and detail; and we must deeply regret that he did not live to do it.

It is by his own anticipation of many-sided and far reaching applications of the doctrine afterwards to be made that we may explain the claim to novelty which he advances for it: for he expressly assigns its inception to Comte, though only as to its general range; and he perhaps meant that 'he discovers who proves' and that the proof remained for himself. On the other hand, if the first general statement of the power of Society in forming the individual belonged to Comte, many special applications of the doctrine had already been indicated. For besides that all laws and education imply a general belief in the influence of Society over the individual, it would be endless to cite the authors who in more or less general terms have remarked it. And if we confine ourselves to professed philosophers, we find at the outset Plato putting into the mouth of Protagoras an elaborate description of the ways in which the family and the state train their inmates in virtue; whilst in the *Republic* almost every page takes for granted the overwhelming power of tradition, institutions, and culture to modify human nature. Indeed, no one of the ancients seems to have realised the influence of Society over the individual so fully as Plato; though it was clearly recognised by Aristotle, Cicero, and others. In

modern times, previous to Comte, Mandeville might be mentioned as the writer who most relied upon this fact in psychological analysis; and his use of it is rather one-sided than false. Hume, too, and Montesquieu were deeply impressed by it; and the doctrine of Rousseau is well-known, that men were at first elevated by entering into Society, but in course of time corrupted and degraded. Since Comte, the most striking proofs of the importance to Psychology of taking account of the social environment of mind have been given by Mr. Darwin in his *Descent of Man* and by Mr. Spencer in his Corollaries to the *Principles of Psychology*. We are impressed whilst reading them with the great advantage which modern extensions of our notion of time bestow upon a thinker in dealing with the same problem of the relation of man to Society that older ones, however able, approached in vain. The changes traced by Mr. Spencer need ages to complete themselves, and whilst they depend upon also advance Society. Turn to Hobbes, and you find him teaching that the life of man in his primitive state was "solitary, poor, nasty, brutish, and short"; yet even then he credits man with reason capable of suggesting "convenient articles of peace," which was desired without having been known; and these were no sooner ratified and Society founded, than the signatories appear to have risen at once to modesty, mercy, gratitude, and justice. Mr. Spencer's appeal to social influences for the interpretation of mind begins indeed in the prehuman stage; whereas Lewes strangely undervalues the importance of society to the life of the lower animals. Whilst, however, Mr. Spencer only introduces the social environment to explain the development of Emotion, Lewes insists upon the influence which it equally exerts upon the development of Intellect; observing that the social factor "permeates the whole composition of the mind". Many hints of the way in which he would have applied this conception to the analysis of intellectual operations may be found in the last book of the fifth volume of his *Problems*; it treats of the Logic of Signs, and shows how the intellect is indebted to Society for the scaffolding of language and signs by means of which it climbs the heights of abstraction.

In estimating the nature and extent of social influences over the individual's development, we may consider first the mere fact of gregariousness and community of interest: this is what is chiefly taken account of by Mr. Spencer and by Mandeville, though the latter sees only the ego-altruistic consequences; and this is indeed the chief concern of general Psychology. To general Human Psychology belong certain secondary and derivative influences which prevail almost universally in human

society, namely, some sort of language, religion and government. Next may be noticed the more special conditions that differentiate particular communities: some of these are established for the very purpose of moulding the citizen, such as law, education, and to some extent literature; others are established for other purposes, or for no purpose clearly discerned, yet react no less strongly on the individual—or, without being established at all, spontaneously grow or are imposed by circumstances, such as arts and institutions, including particular forms of government and religion, variety of custom and language, and density of population. Such are the considerations which principally engage Montesquieu and Helvetius, and generally those inquirers who are sensitive to incipient ideas rather than profound. Lastly, the prevalence at any time of certain types of mankind must result from the competition of the several tribes or societies of men with one another, as the existence of the human race is supposed to have resulted from its successful competition with other forms of animal life.

One remarkable result of the study of human nature thus conducted will surely be a conviction of the perverse infatuation of those philosophers who have persisted in an endeavour to reduce all our motives to selfishness, and a growing belief that, on the contrary, unmitigated selfishness is very exceptionally the incentive of human conduct. For it becomes clear that Society is in fact older than Man, that the later is relative to the earlier, and that innumerable actions which even appear selfish to the individual's consciousness are really acts of sacrifice to the social or racial interest. Not only deeds of spontaneous sympathy or of dutiful virtue, but all that is done for the sake of fame, for rank, or for wealth has a social reference; and the commonest form of self-sacrifice is to plunge into poverty by accumulating an excessive family. In short a man is never entirely selfish unless he acts from the sole and immediate stimulus of hunger or thirst; and perhaps even the strength of these appetites, as well as of the bare love of life itself, is due as much to racial as to individual interests: as the present abhorrence of suicide obviously is. The writings of Schopenhauer contain abundant proofs and illustrations of this, which can easily be translated into the language of empiricism without losing intelligibility or instructiveness.

No space remains to give an account of Lewes's fundamental inductions of Psychology, or of such of them as are here expounded. But the manifestly unfinished condition of the last volume renders it an unfit subject of criticism; and moreover most of the main positions have been anticipated in earlier volumes. Nor are many of them novel. One for which novelty

is expressly claimed may be mentioned: he calls it the "Psychological Spectrum," maintaining that as red, green and violet contain each of them vibrations characteristic of the others, so Sensation, Judgment or Logic, and Volition, all of them enter into every mental state, though we call such states by one or another name according to the element that predominates. This is probably true; but I should not have thought it new: some close approximations at least might be found in the writings of his predecessors—of Prof. Bain, for example.

On the whole it will perhaps be just to credit Lewes with the doctrine of the dependence of the Human Mind upon the Social Medium as his signal and crowning discovery. He did in his life much meritorious work, but has left little that can as a whole survive. His *History of Philosophy* must necessarily be superseded. What longevity is in store for the literary and artistic criticism of our day it is perhaps too soon to judge; but his writings of this kind can hardly be immortal. And for these five volumes of *Problems*, I hope it will not seem a harsh judgment to say that they have not the peculiar qualities for the sake of which books are cherished by generation after generation. It is therefore desirable and just that some definite merit should be assigned to him in connexion with which posterity may remember his name: and of all the doctrines with which his name might be honourably associated, the rest are either too doubtful in themselves, or a claim to their origination is too liable to be disputed. But this truth is of the first rank in importance; once explained it is unquestionable; and Lewes has the sort of claim to have originated it that Bacon has to be considered the discoverer of Inductive Method: he was certainly not the first to apply it, nor even to mention it in general terms; but whilst he made some considerable applications of it, he was among the first to give it a deliberate and explicit enunciation and to predict its power and fruitfulness.

CARVETH READ.

IV.—"MIND-STUFF" FROM THE HISTORICAL POINT OF VIEW.

THOSE who have criticised Clifford's essay "On the Nature of Things-in-themselves," seem to have got from it the impression that, though interesting, it is out of relation to previous speculations. They admit, indeed, that anticipations of the theory of "Mind-stuff" may be found, but these anticipations are regarded not as what they really are—approximations

to Clifford's view, which have had a common origin in the most characteristic tendencies of modern thought—but as isolated suggestions of more or less merit, though of no real importance. Yet in the essay itself the remark is made that the view set forth there is one to which speculation has been tending for some time. And it may be shown by considering the theory of mind-stuff from the historical point of view, that it is the final form of a metaphysical doctrine which has been developed under the influence of the methods and results of physical and psychological science, but which, unlike some speculations that are scientific in their origin,¹ can be maintained against sceptical criticism; and, consequently, that it has strong claims on the attention of those who wish to arrive at a consistent view of things and who regard a metaphysical doctrine as the end of scientific research. In order to prove that all this is so, it will be necessary to describe briefly certain results of biological and psychological study which have rendered possible a metaphysical doctrine founded on science. When this has been done, it will be seen that Clifford's theory is a real attempt at a new construction in metaphysics. A historical account of the theory of mind-stuff may also serve to conciliate those who are suspicious of any theory that looks new and is ingenious and clearly expressed; for it will remove the paradoxical character by which clear and ingenious theories are generally affected. Afterwards, to make the doctrine of mind-stuff seem quite satisfactory, it must be defended as far as possible against the arguments of transcendentalists. It is therefore desirable, before tracing the historical development of Clifford's view, to consider the attitude of the transcendental and empirical schools towards one another. By this consideration of the position of the rival schools of

¹ Prof. Royce, in his article on "‘Mind-stuff’ and Reality," in *MIND* XXIII, seems to regard Clifford's theory as one of the forms of realism referred to here, and therefore as an attempt to revive a conception that has often been tried before in philosophy and has been found a failure. His first objection to it is that if it offers "the current ‘monistic’ explanation of the connexion between physical and psychical facts," then it is "merely a sort of scholasticism revived"; it is the substitution of a "worn-out metaphor," of a "fiction of language," for a scientific statement of the fundamental opposition of mental and physical phenomena. But the theory of Mind-stuff is shown by the historical view of it to be something quite different from the attempts that have been made to restore the conception of Substance either in its monistic or in its dualistic sense; for it was put forth by philosophers who had accepted the negative conclusions of idealism, and idealism is an essential part of it. That is, this theory, considered in its relations to modern metaphysics, is in the direct line of development, while the ordinary monistic systems are provisional theories devised for the sake of giving verbal consistency to a purely scientific view of things, or, as Prof. Royce calls them, "a sort of scholasticism revived".

metaphysics, the kind of objections that Clifford's theory has to meet will be indicated in advance, and at the same time it will be made evident that there was need for some such theory.

I.

The disciples of Kant and Hegel are fond of remarking that since the time of Hume those who belong to the same school of thought as Hume and his predecessors have given up all attempt at pure philosophy, and have confined themselves to psychology and the classification of the sciences. But, they say, the result of Hume's philosophy was not a result that ought to have been taken as final. It was only by concessions to "common-sense" that the philosophy of Hume could be made to seem as if it left room for science. Philosophers ought to have attempted a new construction which should be proof against scepticism, and not to have given up metaphysics as impossible; for a metaphysical doctrine is necessary as a basis even for physical science, and empirical psychology is not sufficient as a substitute for metaphysics. The reply that is usually made by the modern empirical school is, that the philosophy of those who declared experience to be the only source of knowledge was incomplete till the true way of meeting the difficulties pointed out by Kant had been suggested by the theory of Evolution. This answer is to a certain extent satisfactory, but that it is not entirely so is shown by the fact that those who have seen the importance of the theory of Evolution in psychology have not found idealism or scepticism sufficient as a metaphysical doctrine. The "transformed realism" of Spencer and the "reasoned realism" of Lewes, for example, have been put forth in opposition to idealism and scepticism. But neither of these views has been generally accepted by those who are disposed to accept as a whole the system of philosophy founded on Evolution. "Transformed realism" and "reasoned realism" are not able to maintain themselves against idealistic and sceptical criticism, and therefore many admirers of the philosophers who advocate these theories are content to go without a metaphysical doctrine altogether. On the other hand, the Hegelians say they have a system which contains in itself an answer to all scepticism as to the possibility of metaphysics. But their system has not had its form determined by scientific method, and consequently does not serve to explain the generalisations of science, but seems something quite apart from them. For this reason Hegelianism does not commend itself to those who wish to see unity introduced among the conceptions of modern science. Now if it can be shown that

the theory of "mind-stuff" while it is founded on a scientific view of things like the theories of "transformed realism" and "reasoned realism," at the same time does not make any attempt to escape from the necessity that is imposed on modern metaphysics of giving up all pretence of restoring the forms of ontology that were destroyed by Hume and Berkeley, then something will have been done towards proving that the system of Hegel was a premature attempt at reconstruction in metaphysics, and that the only way to arrive at a new point of view capable of superseding dualism was to study psychology and physical science for the sake of their suggestions, until a sufficient number of suggestions for a general theory of knowledge had been accumulated to make it possible to select from them those that are appropriate.

Up to the present time it has not been noticed that Clifford's theory reduced to its simplest form is identical with Schopenhauer's metaphysics of the Will. When the two theories are compared, it is obvious that Clifford's "elementary feeling" corresponds to Schopenhauer's "will as thing-in-itself". Schopenhauer explains that by "will" he does not mean anything like an actual volition, but a kind of fundamental feeling for which "will" is a better term than any other, since it suggests to the mind the element in actual consciousness that is most opposed to distinct cognition, and since this is the element that must be regarded as primitive. More recently the distinction here pointed out by Schopenhauer has been expressed in Mr. Spencer's classification of states of consciousness into "feelings" and "relations between feelings". Mr. Spencer himself has suggested the theory of mind-stuff as a possible view in the chapter in his *Principles of Psychology* on the "Substance of Mind," but has not developed it. Still it is clear that his classification of states of consciousness has led to an improved statement of the theory, for the term "feeling" is less open to objection than the term "will" as the name of that which is primitive in mind.

The importance of Schopenhauer's anticipation of the theory of mind-stuff will be seen when it is considered that Schopenhauer professed to found his metaphysics on science, and that at the same time he was, like Clifford, an idealist; his idealism having however been arrived at by the study of Kant rather than of Berkeley and Hume. As to his metaphysical theory of the Will, he asserted that it was a translation into philosophical terms of the physiological doctrines of Cabanis and Bichat. According to a French critic who wrote on the subject not very long since, all the characteristic doctrines of English and German physiological psychology are implicit in the works of

these physiologists. Even if we admit that some of the conclusions of modern schools may have been read into the statements of the earlier writers, yet in order that such a position as that of the critic referred to can be taken up, there must be many things in Cabanis and Bichat capable of having suggested to Schopenhauer the ideas possessed by the modern schools of psychology. Since Clifford undoubtedly found suggestions in these ideas, the historical parallelism between his theory and Schopenhauer's is very close. Not only have both theories their origin in science but also in the same group of scientific ideas.

The ideas that have done most to make contemporary psychology different from the psychology of the older empirical school are: (1) the distinction that has been drawn between consciousness, sub-consciousness, and unconsciousness as modes of sensibility differing only in degree, the older psychologists having taken into account only those elements of mind that emerge into full consciousness; (2) the application of the biological theory of Evolution to psychology; (3) the discovery by some German psychologists that the methods of experimental physiology may be applied to the psychology of the senses.

Schopenhauer's system was suggested by the first of these ideas. He set out with a theory of the external world held in common by himself and all idealists since Berkeley. In explaining this view he uses the terminology of Kant and distinguishes between the "representation" and the "thing-in-itself". The external world belongs to the representation and is often spoken of by Schopenhauer as "*Maya*" or illusion. Clifford makes use of the same term—representation—in setting forth the idealistic part of his theory. Sometimes the objection is made to this term that "it implies something representing and something represented". But the same answer may be given to this as to similar criticisms on Berkeley's "ideas" and Hume's "ideas and impressions". These philosophers had to explain that they used such terms merely as descriptive terms; they requested their readers to get rid as far as possible of all associations of the words "idea" and "impression" with the metaphors from which they are derived, and with physical hypotheses. The word "representation" has similar associations, and this must be borne in mind when it is employed as a philosophical term. After selecting from previous systems his metaphysics of the external world, the question occurred to Schopenhauer as to Clifford, What is the nature of the thing-in-itself? and he answered it in the same way. The criticism of Hume had made it impossible to accept Berkeley's view that "the substance of mind" is the thing-in-itself; and the empirical psycho-

logy by which all consciousness is resolved into impressions and ideas derived from impressions, was not found adequate as an explanation of things, for the "impressions" of Hume are merely portions of the "representation". The problem that demanded solution was to find something having the nature of mind but deeper than definite consciousness. If this could be found, and could be shown to be capable of explaining actual consciousness so far as explanation is possible, then the problem might be considered as solved.

The facts of physiology have at length led psychologists to see that the series of states of consciousness which it is possible to observe and classify by means of the introspective method alone forms only a portion of the mental life, that definite consciousness has a background of sub-consciousness and unconsciousness. At first it seems like a contradiction to speak of facts of unconsciousness as belonging to psychology; but when it is considered that the same changes in the nervous system may be accompanied according to circumstances by vivid changes in consciousness or by some sub-conscious change or may have no mental concomitant that can be detected by introspection, then it becomes evident that mind must be regarded as consisting of other elements besides those that appear in distinct consciousness; for it is absurd to suppose that the same nervous change taken by itself has different mental concomitants at different times. This conception, suggested by physiology, that mind is made up of elements which may be combined into what is called consciousness, but which, taken alone, are "unconscious," is really implied in the ordinary introspective psychology. The elements into which complex states of consciousness are resolved by analysis are not immediately perceptible in those states; the laws of association must be understood before the elements of actual consciousness can be detached; hence these elements may be called "unconscious". But the study of physiology was necessary to bring out clearly the conception of "unconscious feelings" as factors in mental phenomena. These elements of mind disclosed by physiology were regarded by Schopenhauer as the reality underlying all phenomenal existence, and the fundamental element in mind was called by him the Will. This term was selected because of the antithesis that there is between "will" and "intelligence"; intelligence—definite cognition—constitutes mind as we know it in its highest form; the term "will" is applied to what is regarded as the irrational element in mind—that which is irrational because it is more fundamental than reason. Now if the term "unconsciousness" as applied to mind is once admitted, it is impossible to stop short of admitting that every change in the

brain has a subjective aspect; from this admission it follows that every portion of the "representation" has a portion of "will" corresponding to it. Thus, according to Schopenhauer, the reality outside us is "will". The brain is "the will objectified". When we have that consciousness of resistance to effort which is the basis of our conception of external things, we are conscious of the presence of will as the external reality. The Representation is an illusion we construct for ourselves. It is derivative while the Will is fundamental.

Many of the ideas connected with the general conception of "unconsciousness" have acquired new importance lately, and it may be worth while to mention one or two of them for the sake of their bearing on Schopenhauer's theory. The "muscular sense" and the "organic sense" have been known for some time, and it is partly through becoming aware of the existence of these senses that psychologists no longer believe that all the factors of mental phenomena can be discovered by introspection. Recent theories of the origin of the perception of space, that of Lotze, for example, depend on the admission that there are unconscious elements in perception derived from the muscular and organic senses. But the most interesting problem that has recently been discussed in its relation to the idea of unconsciousness, is that of memory. It has now become a commonplace to say that heredity is unconscious memory. This way of describing the facts of heredity might have been suggested by the study of Mr. Herbert Spencer's exposition of the manner in which instincts developed by mechanical processes under the action of natural selection at length by gradual complication pass into rational processes, and rational processes, after they have been repeated often enough, into secondary instincts. Now this transition from instinct to reason and from reason to secondary instinctive processes cannot be imagined on the subjective side unless it is supposed that "consciousness" and "unconsciousness" are different merely in degree and not in kind. Thus we are brought back to Schopenhauer's theory of Will. At the same time we are led to consider this theory in its relation to the doctrine of Evolution, for the exposition in Mr. Spencer's *Psychology* that has just been referred to is closely connected with the doctrine of Evolution.

Though Schopenhauer put forth a biological theory which has some resemblance to the theory of natural selection, his philosophy was not determined in its general character by the doctrine of Evolution. This accounts for the difference between his theory of Will and Clifford's theory of Mind-stuff. Clifford had the advantage of writing when the idea of Evolution had taken distinct form, and this gives a certain superiority to the

theory of Mind-stuff, a superiority which consists chiefly in the substitution of the term "feeling" for "will".

The antithesis of "will" and "intelligence" is obviously identical with that of "feelings" and "relations between feelings". The latter mode of expressing the antithesis has the advantage that it is less vague, and that its terms are not so much associated with complex phenomena of consciousness as those used by Schopenhauer. But the fundamental distinction of feelings and relations could not be expressed with perfect clearness till the idea of Evolution—of ancestral experience—had enabled Mr. Spencer to extend the method of the older empirical school of psychology. This extension of the method of the empirical school consists in a hypothetical analysis of the ultimate feelings arrived at by introspection into still simpler feelings. Such a reduction of consciousness to simpler elements than those that introspection arrives at becomes conceivable when complex organisms are thought of as evolved from simple organisms; for rudimentary sense-organs imply rudimentary sensations. The result of Mr. Spencer's analysis is that, given "elementary feelings" and relations of unlikeness or of sequence, the most complex phenomena of consciousness may be explained by assuming that gradual development has taken place. This analysis is implicit in Clifford's statement of the theory of mind-stuff, but not in Schopenhauer's.

The results of the application of the experimental method to Psychology are also implicit in Clifford's statement of his theory. Fechner and others have shown by their "psychophysical" investigations that sensations which cannot be resolved into groups of simpler feelings by any process of introspection or analysis are made up of elements of sensation, and that it is by summation of these elements that actual sensations are produced. Results of this kind tend to confirm the hypothesis that qualitative differences of sensation depend on differences of combination of some unit of feeling which may be defined as a "shock" or a "tremor". The view that mind-stuff consists of such units was regarded by Clifford as the final form that would be taken by his theory. If the theory should take this form, it would be, as Clifford says somewhere, an "atomic theory" of mind. Since we have already an atomic theory of matter, there would thus be exact correspondence between the thing-in-itself and the representation, and a meaning could be assigned to the "proportion" formulated by Clifford at the end of his paper.

The theory of mind-stuff, as has already been said, is not open to the ordinary sceptical criticism of ontological theories, for it rejects as fictions both the "substance of matter" and

the "substance of mind". The ambiguities of the word "cause" also disappear in the final statement of the theory of mind-stuff, just as they do in the latest form that has been taken by the logic of the sciences. The fundamental axiom of inductive logic, "the uniformity of nature," as Clifford remarks, has become "an atomic uniformity"; and it has been stated by Lewes as "the law of identity" without any introduction of the word cause.¹ Corresponding to this improved statement of the law of phenomenal uniformity, a "law of identity" may be stated for things-in-themselves. All that it is necessary to assert is that units of mind-stuff exist and that they never cease to exist, though they are always forming new combinations.

II.

The arguments that are most frequently brought against the doctrine of the empirical school in general amount in effect to this—that it is an attempt to explain thought by sense, to show that the consciousness of personal identity and the consciousness of the distinction between subject and object are illusions depending on certain collocations of feelings in experience, and hence that feeling is the only reality; and that in trying to prove this position it takes for granted what ought to be explained. For, it is said, unless there is already in the simplest feeling some power of combining with other feelings, how are we to explain the first appearance of consciousness? And unless even the highest kind of self-consciousness is implicit in feeling, how is its appearance to be accounted for at all?² It is the perception of the difficulties pointed out by such criticism that has made the system of Hegel seem more plausible to some than that of the English school of philosophy. Hegel and those who agree with him, finding in the psychology of the empirical school the antithesis between "thought" and "sense," observing further that the philosophers of that school give their readers the impression that it is demonstrated that all but

¹ Clifford would have introduced some qualifications, in interpreting the law of identity, which Lewes did not think necessary; but he agreed with him that the Uniformity of Nature ought to be expressed as a law of changes of collocation, and not as a law of succession of events.

² This is an argument on which Prof. Royce, in *MIND* XXIII., lays much stress. Here, for example, is a compact expression of the whole series of objections from this point of view: "Consciousness is, in and for itself, an unity, containing a multiplicity of parts, but not wholly made by the summation of these parts. Now given a sum of mind-atoms, how shall consciousness arise out of them? . . . This unity itself, what of that?"

"sense" is an illusion, and having decided that this view is inadequate, try what can be made of the opposite view that thought is identical with being, that the "thing-in-itself"—that on which all phenomenal existence depends—is "self-consciousness," that the illusion is sense and not thought, the flux of feeling and not the consciousness they say we have of unity beneath the perpetual change in things and in ourselves. The fact that this view of things has been elaborated into a system shows that there is some defect in the ordinary statement of the empirical doctrine, and it seems at first as if this difficulty were inherent in the theory of mind-stuff also. For this theory has for its psychological basis the Spencerian classification of states of consciousness into feelings and relations between feelings, which is an accurate expression of the antithesis between "sense" and "thought," just as it is of the antithesis between "will" and "intelligence". The criticism from the Hegelian point of view of all empirical psychology may therefore be applied to the theory of mind-stuff under the form of such a question as this—If in the beginning only feelings exist, if the "elementary feeling" is the thing-in-itself, how do relations between feelings come into existence? This question has been asked in recent articles in *MIND*.¹

The answer is that in the final statement of empiricism "relations" are just as fundamental as "feelings". All that afterwards becomes thought is implicit not in mere feeling, but in the primitive relations between feelings; out of the combination of elementary feelings having at first simple relations to one another, all the complexity of actual consciousness arises. Thus the self-consciousness which the Hegelians say must always be present is implicit at first as some simple relation between feelings, while the "unity" they say exists beneath superficial multiplicity is found in the stuff out of which actual consciousness is made; for this remains always identical with itself, though the forms of feeling constantly fluctuate and though no particular phase of existence is permanent.

But it may be said, if relations are as fundamental as feelings, why should the elementary feeling be called the thing-in-itself? For does not the term "thing-in-itself" mean something that exists out of relation? The reason for saying that "the elementary feeling is the thing-in-itself" may be made clear by the analogy of a mathematical limit. In passing from the higher to the lower forms of consciousness, feelings constantly become more prominent and relations less prominent, and this

¹ In "Monism," by Mr. E. Gurney, in No. XXII.; and by Prof. J. Royce in No. XXIII.

is true whether we arrive at the lower forms of consciousness by passing down the scale of mental evolution or by analysis of consciousness in its higher forms; hence it is possible to approach as near as we like to the conception of pure feeling existing by itself though never actually to reach it. But, as in mathematics, we may give a name to this ideal limit and say that pure feeling is the thing-in-itself.

It is true that, proceeding in the other direction, that is, passing from the lower to the higher forms of consciousness, we may approach as near as we like to the conception of pure thought entirely independent of concrete feeling. And this is how the Hegelian doctrine of the identity of thought and being has been arrived at. Fixing their attention on those forms of consciousness that are the last result of evolution, the Hegelians observe that the element of "relation," of "thought," becomes indefinitely more prominent than that of feeling. Thus they seem to arrive at pure thought just as the empirical school seem to arrive at pure feeling as the ultimate reality. It may, accordingly, be argued that "pure thought" should be called a thing-in-itself just as much as pure feeling, for it is also an ideal limit; the difference consisting in this—that while the Hegelian conception expresses the tendency of evolution by which "form" gradually becomes more important than "matter," the conception of the elementary feeling as thing-in-itself describes the origin of consciousness in raw material in which form is implicit as some simple relation. And there would be no objection to saying that thought is identical with being as an alternative formula with the other, that the elementary feeling is the thing-in-itself, if this were not regarded as an assertion that the highest forms of consciousness have been present from the first otherwise than implicitly, that is, that there has been no real process of evolution. Unfortunately the Hegelian principle is sometimes taken in this sense, while, on the other hand, no statement of the empirical doctrine has ever been supposed to involve a denial of the existence of thought and self-consciousness.

The admission that "feelings" and "relations" are equally real thus explains the way in which philosophers of opposite schools have come to conclusions that are apparently contradictory. When we think analytically, the act of attending to the feelings by the combination of which thought is evolved obscures the idea of the relations without which these simple feelings could not exist; and on the other hand when we try to see unity in a multitude of impressions, when we think synthetically, the act of attending to complex relations obscures the idea of the concrete feelings without which thought could

not exist. In Clifford's statement of the theory of mind-stuff, this admission that relations are equally real with feelings is implied, but it is said that "the elementary feeling is the thing-in-itself," because this formula embodies the results of the analysis of the complex into the simple, while the formula "thought is identical with being" seems to imply that analysis is superfluous. But without analysis there can be no explanation of things, for in seeking an explanation of things the question what is the origin of them is the most important; its solution is a preliminary to the solution of all other questions. Clifford's formula is an expression of the ideal limit beyond which no investigation into the origin of things can pass.

III.

The theory of Mind-stuff is of course metaphysics and not science, though it has been suggested by the results of the special sciences. It is impossible to verify it as a scientific hypothesis can be verified. The test of the truth of a metaphysical theory is, as Schopenhauer says, consistency, and not application to some new class of facts which it was not invented to explain—that is, not verification as it is understood in science. A metaphysical theory is an attempt to express the fundamental facts of consciousness in their most general form. When an assumption is seen to be ultimate, the question whether it is a necessary truth or a necessary illusion becomes meaningless. The only question is whether it is really fundamental. That this is so is admitted explicitly or implicitly by all schools, both those that start with the facts of feeling and those that start with the fact of self-consciousness or with some principle of reason. The acceptance or rejection of the theory of mind-stuff then ought to depend on whether it really expresses in their simplest form the fundamental facts—or the fundamental illusions—of consciousness. Now its only assumptions are these—that there is real existence external to ourselves, and that "nature is uniform". In Clifford's statement of the theory, the first of these is reduced to its simplest form as the assumption of "ejects," that is, mind and portions of mind-stuff external to the individual mind; the complications of material and mental substance are got rid of. The assumption of uniformity is also made as simple as possible; it becomes the law of "the identity of cause and effect," the assertion that what exists will continue to exist, a law which is equivalent on the subjective side to Schopenhauer's proposition that "will" is essentially "the will to live".

When the theory of mind-stuff is stated in this way it looks

something like a return to the belief held by those who first began to speculate on the causes of things, that external objects have a kind of life. This has been urged as an argument against Schopenhauer's system. It is said that his "metaphysics of the will" is merely an attempt to make the illusion that resistance is a form of volition the foundation of a philosophical system. The reply to this objection is now obvious. The feeling of resistance is the feeling which is fundamental in all our perceptions, and when an illusion is universal it is impossible to distinguish it from an ultimate truth. What is called the "illusion" of the identity of resistance with feeling is fundamental, and is merely the most general form of the assumption of "ejects"; it is therefore impossible to escape from it. But, after all, it may be said, this theory of Schopenhauer and Clifford is the consequence of a return to the speculative attitude appropriate to the primitive ages of philosophy, and such a return seems an anachronism. Some considerations to which this objection leads will show that, on the contrary, the theory in question belongs really to the last stage of philosophical evolution that can at present be imagined.

According to Schopenhauer's celebrated theory of æsthetics, the earliest attitude of the human mind towards all that surrounds it is the "subjective" attitude. At a later period there is disinterested contemplation of external things without reference to their power of causing pleasure or pain in the spectator. The attitude of disinterested contemplation is the "objective" attitude, and it is not till this has become possible that there can be appreciation of works of art. It is evident that a similar account might be given of the growth of science. It might be said that setting out from the "subjective" stage of thought and feeling in which things are regarded merely as useful or hurtful, pleasant or painful, we may reach the "objective" stage in two ways: that on the scientific side we at length attain to the conception of observation and experiment as a means of learning the causes of things, just as on the æsthetic side we attain by disinterested contemplation to the conception of the beautiful. Now the argument against Schopenhauer's metaphysics quoted above might have been founded on his own theory of art. It might be said that his metaphysical theory of the will is "subjective" and not "objective," and therefore belongs to the primitive stage of speculation. This shows that there is some defect either in his metaphysics of the Will or in his view of æsthetic development. It will be found that the defect is in his view of æsthetic development, which is true as far as it goes but incomplete. For there is a third stage of art (and also of scientific thought) which may be called "subjective,"

though it is in reality most remote from the subjectivity that Schopenhauer seems to have regarded as typical.

The "subjectivity" described by Schopenhauer is found in those speculations that had their origin in the period before science and poetry were completely differentiated. In mythologies, for example, an attempt is made to explain the causes of things, and at the same time things are regarded chiefly in their relation to the welfare of men. This period may therefore be called in a sense the period of the subjective stage of speculation. But the speculations of this early period seem to be subjective in character because the objective and subjective points of view have not yet been distinguished. The stage of speculation that is distinctively subjective comes last. Before it is arrived at an attempt is made in the various sciences to look at things entirely as portions of the object-world. Afterwards the introspective point of view is reached; it is seen that to think we can have a purely objective conception of things is to be under the influence of an illusion; we learn that all phenomena are phenomena of some consciousness. The introspective point of view is that which is distinctively subjective, and it is undoubtedly the last to be attained, as is shown, when we refer to the history of modern speculation, by the fact that Hume and Berkeley came after Bacon and Descartes. But though this subjective stage of speculation is the most remote from that of the primitive man, of those who made mythologies, it has a superficial resemblance to it, for in metaphysics and psychology as distinguished from physical science and cosmical speculation there is the element of self-consciousness, and the introspective method looks at first very much like the habit of seeing things merely as they affect the emotions.

Returning to Schopenhauer's theory of aesthetics, by which this view of the evolution of scientific thought was suggested, it remains to show that there is, as has been said, a final stage of the evolution of the aesthetic sense corresponding to the introspective stage of the evolution of the speculative faculty.

This final stage of æsthetic evolution is seen best in the case of poetry. One feature of the most characteristic modern poetry—that is, lyric poetry—is its subjectivity; and there is a certain resemblance between this subjectivity and that of the early ages, though they are really extremes having between them the "objectivity" described by Schopenhauer. Sometimes in reading lyric verse the impression is produced that the poet is expressing directly and simply and spontaneously the emotion that is present to him; but it is known that this is an illusion. Elaboration of rhythm, careful selection of epithets, the intention to produce a definite effect that has been distinctly

conceived beforehand, are recognised by criticism as essential to a lyric poem of the highest kind. Yet the result of all this is to give lyric poetry a superficial resemblance to those kinds of primitive poetry in which there is really direct and simple and spontaneous expression of the emotions. The difference is that early poetry is a product of emotion which has not been analysed, that is, of crude subjectivity, while modern poetry of the most typical kind is a product of self-consciousness, that is, of developed subjectivity. A process of analysis is necessary to bring into distinct consciousness the real effect of things on the mind, and it is the characteristic of the highest kinds of art to describe the effects of things rather than the things themselves. Thus it happens that expressions which seem the most direct are often the most artificial and poetry which seems the most passionate is often the most intellectualised.

This passage from the crude subjectivity of the early ages to the self-consciousness of the later ages is seen on the imaginative side of poetry as well as on its emotional side. One of the critics of Shelley has remarked that the images called up by some of his lyrics remind us of the sun-myths and dawn-myths of the primitive Aryans. To put it generally, there is a return in modern poetry from complex descriptions to simplicity of imagery. And this is one aspect of the change from the "objective" attitude which has substituted itself for the primitive mode of regarding nature to that of self-consciousness; for the simplicity of the early myths is the simplicity of vagueness, while that of the modern poetry that seems to resemble these myths in the character of its imagery is the simplicity of abstraction.

The apparent return to simplicity that is noticed in modern poetry may be observed in its form as well as in its imagery and its emotional basis. But the laws of lyric verse are, as has already been said, more complex than those of the "objective" poetry that attempts to describe nature and human life from the outside. The simplicity of the lyric is therefore artificial, and is distinguished by this character from the simplicity of the ballad for example. The same character of artificial simplicity is seen in the products of other arts when they reach their final stage as well as in the art of expression in verse, but it is sufficient to have illustrated from literature in its highest form as poetry the view that has been taken of the development of the æsthetic sense, literature being the art in which the greatest number of conditions are fulfilled.

A transition similar to that which we observe in passing from the earliest to the latest results of speculation and of art, may be seen in the growth of society also. It might be shown, by

quotations from Spencer's *Social Statics* or from Bagehot's *Physics and Politics*, that there is a transition from the anarchy of early ages through a period of authority, of law, of complex regulation, to a state of freedom. Perfect freedom, of course, only exists as an ideal limit, but a state of perfect freedom is conceivable in which law has disappeared except so far as it has become organic in the individual, and the description of such a state has a superficial resemblance to a description of "the state of nature".

All this goes to show that the apparent resemblance of the theory of Mind-stuff to the half-poetical, half-philosophical views of early speculators must be regarded as an argument in its favour, since this resemblance is a proof that the theory belongs to the last stage of thought that can at present be imagined. Those early speculators who have just been referred to had really the advantage of not being too much oppressed with the material of thought, and were therefore able to give a sort of answer to the most general questions that can present themselves. But the answers they gave did not satisfy those who afterwards studied nature in its complexity as a group of objective phenomena. It was necessary that the results of scientific investigation should become organic in thought before such problems as that of the thing-in-itself could again present themselves clearly. In the meantime there was a movement away from metaphysics. Then at length it became possible to think out from the point of view of self-consciousness a theory that should be really metaphysical and not an attempt to substitute science for metaphysics, but in which at the same time the results of scientific study should be implicit. Clifford's theory has the characters just described; and it has also the character that belongs to every final intellectual product, of appearing perfectly simple when it has once taken distinct form.

T. WHITTAKER.

V.—HEGEL: AN EXPOSITION AND CRITICISM.

HEGEL has been brought nearer to the English mind in many ways since Dr. Stirling divulged his "Secret" to an incurious public sixteen years ago. From Oxford and from Glasgow there has issued a succession of books dealing with metaphysical, ethical, and religious problems from a Hegelian standpoint, and directly or indirectly expounding Hegelian ideas.¹ There are

¹ It is only necessary to refer to Professor Green's *Hume* and Professor Caird's *Philosophy of Kant*, to Mr. F. H. Bradley's *Ethical Studies*, Principal

signs of the leavening influence of these conceptions in other quarters. The interest evinced by critics like Mr. Sidgwick and Mr. A. J. Balfour in the new interpretations of Kant and in the whole movement to which they apply the name of Transcendentalism or Neo-Kantianism may fairly be instanced. But in spite of all this it cannot be denied that there still prevails a vast deal of misconception about Hegel, and what he professes to do for us. There is still a haze of mystery about his name; and the evil is increased, in the opinion of the present writer, by the false humility with which it is often the fashion to speak of him in friendly quarters. His followers are too fond of representing themselves as merely picking up crumbs at the banquet; most of them profess merely to guess at the mind of the Master without venturing to compass his thoughts. This has an evil effect in scaring away the uninitiated, and the frame of mind is in itself not altogether healthy. Hegel is not infallible, and he must, in the end, be known and judged as other men are.

Probably, however, still more mischief is done by the current idea of Hegelianism as an '*a priori*' system which neither begins nor ends in experience, and which, if taken at all, must be swallowed whole. Hegel's immediate followers in Germany did much to countenance this notion, insisting, as is usual in such cases, on the mint, anise and cummin, to the detriment of the weightier matters of the law. The reaction which has overtaken Hegelianism in the land of its birth is due, among other causes, to the impression thus created, that the substantial truth of its conception of the universe stood or fell with its infallibility as a system. It would be a mistake to over-estimate that reaction, for, in many respects, Hegelianism died only as a seed dies, when committed to the earth. "The fewest of those who are influenced by Hegel's spirit are themselves aware of it," says an outsider like Von Hartmann; "it has become the common heritage of the most cultured circles of the German people."¹ But if Englishmen are to reap the full benefit of Hegel's thought, it is important that his expounders should aim at greater freedom of treatment. The dialectic armour must be worn more loosely, if it is not to hamper them. When they succeed in this, they will also succeed in making plain that Hegelianism has no other basis than things as they are. Neither in his premisses nor in his conclusions does Hegel transcend experience; and when all

Caird's *Philosophy of Religion*, and, in the way of direct exposition, Mr. Wallace's *Logic of Hegel*. Professor Adamson's compact sketch, *On the Philosophy of Kant*, may, without injustice, be added to the list.

¹ *Vermischte Aufsätze*, p. 568.

is said, it is the essential soberness and practicalness of his system that is its greatest recommendation.

The aim of the present sketch is partly expository, partly critical. An attempt has been made at first hand to set the different parts of the system in their true light, and, to some extent, to estimate their value. An exposition and criticism must always be more technical than a piece of independent reasoning need be; and in the present instance the necessity of conciseness in a review of Hegel's general position has sometimes made the treatment more abrupt than is desirable in the case of unfamiliar conceptions. But this will not, I hope, be found to obscure the general view of the Hegelian philosophy, and of philosophy in general, which forms the basis of this essay.

It has been well remarked by Dr. Stirling, that Hegel, by burning his bridges behind him, has wantonly increased the difficulty of his system. Its appearance of utter insulation and the strange underivedness of its beginning prevent us at first from seeing its origin in the achievements of his immediate predecessors. This is perhaps to be accounted for by the fact that Hegel, as a matter of individual history, did not reach his fundamental conception of the universe along the lines of Kant and Fichte. He worked his way to it by the aid of the Greek spirit on the one hand, and by a profound study of the main religious ideas of Christianity on the other. The result of his solitary meditations was afterwards, one might say, poured into the mould of the Kantio-Schellingian philosophy, and took its place as the last term and summation of that development. But this can hardly excuse the almost disingenuous tone which Dr. Stirling remarks in some of his references to Kant. The very persistence of his polemic against Kant betrays the extent of his debt. That debt was in some respects more to Kant directly, than to Kant through Fichte and Schelling; for in his retirement at Frankfurt Hegel had already reached his own doctrine of the Absolute as (in the first instance) a chain of thought-determinations, before Schelling gave his *Philosophy of Identity* to the world. The doctrine that the Absolute is Thought was, for Hegel, the direct result of his study of Kant.

Kant set out to find the necessary limits of our intelligence, but he naturally found it impossible to determine these limits without an analysis of the conceptions which form the structure of knowledge as knowledge. This investigation resulted in the discovery of the categories and of their supreme condition, the unity of apperception. Fichte, followed by Schelling, laid hold of Kant's unity of apperception and elevated it to a metaphysical principle as the Absolute Ego, or simply as the Absolute. In so doing they forgot—or at least temporarily ignored the

fact—that the *Critique* was essentially a theory of knowledge, and that this transcendental Unity was only “the vehicle”¹ of the conceptions, and consequently a mere empty form without its rational content. To this neglect I think we may trace Schelling’s *Neutrum* and the transcendent predicateless Being at which Fichte finally arrived. Self-consciousness, Kant says,² is only “the reference to itself as Subject—the form of thought,” and consequently self-consciousness, apart from thought, is, naturally, “an expression quite empty of content”. It is here that Hegel takes Kant up. He fastens on what is really the core of the *Critique*, but which, up to that time, had been comparatively neglected—the Deduction of the Categories. It is as if he had said, ‘Let us abstract a little from the form of thought. A thinker can be known only through his thoughts; let us see, therefore, what these thoughts are. Let us examine the nature of thought itself, and if self-consciousness is the necessary form of thought, we shall be able to exhibit that form as the result of thought’s own nature. Putting the question more narrowly, let us examine the mutual relations of the categories which Kant offers us as constitutive of experience.’

Hegel often blames Kant for undertaking his critique of knowledge solely in a transcendental interest, *i.e.*, solely with reference to the question whether the categories are subjective or objective in their origin. He accuses such a criticism of failing to enter upon the content of these thought-determinations and their exact relation to one another. And in point of fact, if Kant’s design be considered, the results he reached as to the structure of knowledge were, in a manner, accidental to his main inquiry and gleaned by the way. Kant’s standpoint, however, involves, according to Hegel, an impossible question. Thought cannot criticise its own ultimate nature; it simply is what it is. The conceptions which form the body of thought constitute my nature as a thinker: they equally constitute the nature or framework of things. The idea of another Nature behind the one we know is a fiction without foundation. “Thoughts do not stand between us and things, shutting us off from the things; they rather shut us together with them.”³ An objective and disinterested investigation of the nature of thought as it is in itself, is therefore the only possible metaphysic. Logic and Metaphysic coincide, for in analysing the structure of reason—the build of its conceptions—we are analysing, according to Hegel, the essence of God and the thoughts He has embodied in Nature. What Hegel presents us with in the *Wissenschaft der Logik* is an

¹ Kant, *Werke* III. 274 (ed. Hartenstein). ² *Ibid.*, p. 281 n.

³ Hegel, *Werke* III., 17.

exposition of the uncoloured and simple essence of that whose nature it is to exist as Spirit and to view itself in things.

To the treatment of Kant's meagre table he brought a mind steeped in Greek philosophy. The subtle dialectic with which Plato treats such conceptions as limit and the unlimited, being and non-being, the one and the many, sameness and difference, had early fascinated him. The example of Plato, acting upon Kant's hint that the third category is the union of the other two, first prompted perhaps the attempt to introduce fluidity into the conceptions which we ordinarily use as hard and fast counters of thought. If we add the dominating influence of Aristotle's metaphysical formulae, we have the main factors of the Hegelian logic. His obligations to Fichte, however, are not to be forgotten. It was Fichte who first elevated the triplicity which Kant stumbled upon in the categories into an absolute principle of method. The thesis, antithesis and synthesis of the *Wissenschaftslehre* are the notion, the negation of the notion, and the negation of the negation which meet us in the *Logik*. Secondly Fichte's insistence on the supreme right of the Subject, after being in abeyance in Schelling, reappears in Hegel, who sums up all existence in the Absolute Spirit. And, thirdly, he also owes to Fichte the idea of *system*. What was set up in the *Begriff der Wissenschaftslehre* as an ideal, it is the boast of the *Logik* to be : "an absolute totality returning upon its starting-point, in which one thing leads to all, and all things to one".¹ The adequate scientific account of a conception according to Fichte is simply the determination of its place in the system—the showing what preceding notion determines that place, and what further notion has its place determined by the notion in question.² And in the *Sonnenklarer Bericht* he says :—"My exposition sets out, as every scientific exposition should, with the most perfectly undetermined, and determines this further before the eyes of the reader."³ The words are an exact description of Hegel's method in the *Logik*.

Opposition and identity in that opposition is the formula exemplified in the development of every conception and the method by which we pass from the one to the other. Each is shown to be the prey of an immanent motion by which it glides into its opposite. The conceptions viewed in this movement are notions, and the system of all notions is the Notion. Synthesis through antithesis, fuller position through opposition, affirmation by negation may be said indifferently to characterise this method. Perhaps the last would best describe the nature of the dialectic progress. Hegel says himself in the Introduc-

¹ Fichte, *Werke* I., 59.

² *Ibid.*, I. 55.

³ *Ibid.*, II. 414.

tion to the larger *Logic*:—"The only means of gaining scientific advance is the knowledge of the logical proposition that the negative is as much positive as negative," since it is the negation of a definite thing. Determinate negation contains that which it negates, and therefore possesses a content, and indeed a richer content than the positive whose negation it is. This is the method which Hegel assures us that he "*knows* to be the only true one". His own application, he admits, may be imperfect and capable of much elaboration in detail; but the method is a dialectic inherent in the subject matter. It is the course of the object itself (*der Gang der Sache selbst*). The Notion determines itself; we look on, and observe "the necessity of the connexion and the immanent origin of differences."¹

The method has been from the beginning the boast of friends and the scoff of enemies. What have we to say to it in view of statements like the above? Plainly the first thing is to admit unreservedly the value of the light thrown on the function of the negative. It is at once the most natural and the most fruitful way of considering a conception, to note the subtle affinities and insensible transitions by which it is linked to its opposite. The thoroughgoing application of this mode of analysing thoughts to the whole range of our general conceptions—its elevation in fact to a method—could not fail to produce rich results in the hands of a metaphysician like Hegel. We find accordingly, imbedded all through the *Logic*, passages of the most precious metaphysical analysis; and the ghosts of many an old controversy are laid when the light is let in on the innate dialectic of thought and things. Conceptions, among which ordinary, and even scientific, thought stumbles helplessly, are dissected to the last fibre of their chameleon-like nature, and from henceforth we master our conceptions instead of being mastered by them. It cannot, therefore, be denied that the dialectic method followed in the *Logic* is founded on the nature of thought, or, as it is expressed, is immanent in the notions themselves and not a subjective importation into them. And in the end this is no more than saying that no conception stands by itself, but all are linked subtly to one another. Thought is infinitely fluid, and makes no distinction which it does not again dissolve. Hegel is only making universal a principle, which, in its more obvious aspects, had engaged the attention of other thinkers, notably of Plato and of Kant.

But when all this is said, there can be no doubt that much unnecessary fuss and mystery has been made about the method. We are told to sink our subjectivity, and watch the necessary

¹ Cf. Hegel, *Werke* III., pp. 41-3.

evolutions of the Notion. But it is in vain that we are asked sometimes to believe that the whole chain would unwind itself before the eyes of any man who, with steadiness and sharpness enough of intellectual vision, took up in a spirit of faith the link of "Being". The *Logic* is like the temple of Solomon: no tool of iron was heard in the house while it was in building, but the stone, we read, was "made ready before it was brought thither". The materials for the edifice have been brought from all quarters of the world. Hegel's thorough knowledge of history and of philosophers ancient and modern, his acquaintance with science, his profound appreciation of the conceptions of religion, and his splendid powers of metaphysical criticism are all fused in the prodigious toil of the *Logic*. It is without doubt the most wonderful piece of dove-tailing ever accomplished by human ingenuity. The expression used—dove-tailing—does not imply that the connexions established are arbitrary. We may admit that in a number of cases they are forced; still in the main this is not so. But the word does imply that what is good in the *Logic* is the result of honest human labour, guided, it is true, by a fruitful thought, but not superseded by a magical and all-compelling method. And like all human work it is approximative in character and capable of indefinite rectification and amplification in detail. This is contained in Hegel's own admission quoted above, as well as in the improvements and transpositions made at different times both by himself and his followers. To assert anything else would be to claim inspiration for the system as the perfect, adequate and systematic transcript of the whole contents of human reason. And that is a claim which will hardly be pressed at the present day.

There is no need here—indeed it would be impossible—to begin with the ultimate abstraction of "Being" and give a list of the categories in which the *Logic* develops itself. That gives no idea of the value of the work, and may be found, besides, in the Histories of Philosophy. The value of the *Logic* lies not so much in the transitions themselves as in the way they are made—in the detail with which each conception is treated, and the changing lights by which it is illuminated. Not least valuable are the "Anmerkungen" or excursus, in which the dialectic of these abstract conceptions is seen in its concrete working—in philosophical systems, in mathematical and physical ideas, in morality and in religious thought. In particular no praise can be too high for his criticisms of Kant in this connexion.

There are still some misapprehensions, however, in regard to the *Logic*, which it may be worth our while to remove. Many criticisms of Hegel seem to father upon him the notion of a

thing-like existence of these pure thoughts prior to their existence in nature and in intelligence. Some critics even go further, and strain their imagination to conceive how in this "realm of shades" the more meagre conceptions give actual birth to the richer and higher. The absurdity of such views hardly needs to be demonstrated. Development, with Hegel, means no more than mutual implication. The dialectic method is as much analytic as synthetic; it is as much a finding of present differences as a generating of new ones. A first link of the chain is necessary in exposition, and we seem to begin with the absolutely simple and abstract. But neither in reality nor in thought is there such isolated simplicity and abstractness as we imagine to be the case here. "In reality we bring the *Begriff* and the whole nature of thought with us; and so we may very well say that every beginning must be made with the Absolute, just as all advance is only its exposition."¹ In fact, if the Notion be an organic whole, then it is impossible for the parts to exist before the whole; the whole and all its parts exist simultaneously. The system of notions is to be exhibited, further, as a development which finds its crown and completion in Spirit. Hegel lays great stress on the insight that the absolutely-true must be a result (and not a formless beginning, as with Schelling). But it is a result only in a sense in which it is at the same time the presupposition of the whole. The development is only ideal: thought *exists* only as spirit. The result is with equal right the first (or rather the only) existent, and the ground of the whole development.

One consequence of this is, that we cannot, in strictness, say that the result has been independently proved, because it has been reached in this fashion by the method. It was presupposed in the method all along. The formula which expresses the nature of the Absolute, and of which every conception (as well as every natural formation) is an instance, is originally a schema or abstract definition of conscious intelligence. The Absolute Idea is only the perfect form of the relation which is found at all times between a knower and his knowledge. It was there Hegel found his Absolute, and, in this sense, Hegelianism is a systematised anthropomorphism; it is content to dwell within a circle from which, in any case, there is no escaping. The identity of the human and the divine reason is certainly an immanent presupposition of the system, and not, in the ordinary sense, proved. Hegel knows only one Reason and one universe as the manifestation of that Reason. And the

¹ Hegel, *Werke* V., 334. Compare the whole of that chapter on the Absolute Idea.

fact remains, that nobody knows any other, or, from the nature of the case, can have any data for postulating different kinds of reason or thought. The burden of proof lies not with Hegel but with his opponent. The notion of an "intelligible contingency,"¹ so common since Kant, *i.e.*, of possible distinct varieties of thought, is the mere whim of a speculation intoxicated with its own acuteness and freedom from prejudice. It is a cheap profundity that asks after every demonstration, 'But might it not all have been otherwise?' Of course it might; there is no *a priori* reason for existence being what it is. But philosophy deals with what is, and Hegel showed his good sense in disregarding such motiveless possibilities.

In what has gone before we have been nominally confined to the *Logic*, though much of what has been said applies to the whole system. But if our philosophy is not to remain abstract, an advance must be made from pure thought to the consideration of Nature and Spirit. The *Begriff* is the soul of both Nature and Spirit, and is the core of Hegel's philosophy; but it is as yet abstract thought—thought as it is in itself. In Nature we see thought as it exists outside of itself—objectivised; but the end is not reached till thought exists also for itself; it exists in and for itself only in the self-conscious intelligence. It is difficult at first sight to see the necessity of passing from the *Logic* to these other spheres; and indeed it may at once be confessed that the imagined dialectic, which drives thought out of itself, does not exist. Thought sums itself up in the Absolute Idea, which is defined as the unity of the Notion and its reality—as the pure Notion which has itself for its object. There seems no adequate reason for proceeding further; the definition appears to be the same as that of the Absolute Spirit, with which philosophy in general closes. We are told, however, that the Absolute Idea is confined to the element of pure thought and still logical. The objective contemplated is still merely the system of thought-determinations which constitute the *Logic*, and the Idea wants the richness of concrete life—the life of philosophy, of art, of religion and of the State—which is found in Absolute Spirit. But this determination of the merely logical nature of the Idea is only possible through the presupposition of an existent concrete—Nature and Spirit—from which it has been abstracted. We could not predict from the *Logic* that the Idea would manifest itself in Nature and Spirit, if we did not know from experience that it does so. Spirit, as has been seen, is presupposition as

¹ "Intelligible Zufälligkeit." This phrase is used by Lange in his *History of Materialism*.

well as result; and Hegel says himself: "Nature is the first in time, though the absolute *prius* is the Idea."¹

The transition from logic to the realm of nature has always been a favourite point with assailants of Hegelianism. This is partly owing to Hegel's own phraseology and the appearance of a *priori* deduction which he gives to everything he touches; partly to the misconceptions of others as to what his system, or philosophy in general, could yield them. Hegel's phrases are that the Idea "releases itself freely unto the externality of space and time; it resolves freely to release itself as nature out of itself". Now there need be no hesitation in saying, with Schelling, that these metaphorical phrases merely indicate a leap across "the ugly broad ditch" which dialectic is powerless to bridge. But it must be added that the ditch exists only if we suppose the system of logical conceptions existing factually as the *prius* of Nature. In reality the necessity for such a transition is purely factitious, because the notions never existed otherwise than in Nature and Spirit. They are the Absolute, because they form the common basis of Nature and Spirit, and their treatment apart was a merely ideal separation. They were got by abstraction from the concrete, not out of the air by any *a priori* method. We owe, therefore, no apology for a return to the reality from which we took them.

In the discussion of Nature a good deal of metaphorical language is used both by Hegel and by his followers. According to the phraseology given above, nature is usually described as objective thought—as the otherness or externalisation of thought. Hegel, after Schelling, speaks of nature as a petrified intelligence; and Dr. Stirling says that Hegel has demonstrated "all to be but a concretion of the notion".² Now in speaking of nature as the "other" or *alter ego* of thought there is implied a fundamental sameness with, at the same time, a difference. And a critic in hearing such phrases will doubtless ask, wherein consists the *alterity* of the Ego, what constitutes the "petrification," or "concretion," or "materiaturation," as Hegel is fond of calling it? In what do conceptions, viewed as in nature, differ from the same conceptions, viewed in the pure element of thought? The reply of the Hegelian will probably be that an otherness of some sort is implied in the very possibility of knowledge. Self-consciousness is the *datum* of philosophy as well as its goal; and it could not come to pass without the contrast of subject and object. But the difference is merely formal, while the identity is real; Aristotle, too, in ancient philosophy, recognised the truth that the thinker and his thoughts are in some sense the

¹ Hegel, *Werke* VII., i., 32.

² *Secret of Hegel*, I. 177.

same. No reason can be given, however, why this objectivity should take the form of the perception of a world in space. That is simply a fact to be accepted; and Hegel contents himself with showing that the attitude of intelligence towards this world is not ultimately different from the relation of a thinker to thoughts, which, by decipherment, he makes his own. The limpid clearness of this relation is interfered with in immediate perception by the character of the space-relations, which form the fundamental determination of nature. Space seems to introduce a pure separateness of things from thought; and to it is due the appearance of petrification or concretion just referred to. But when it is recognised as being in reality the first intelligible bond by which things are connected one with another, it becomes the evidence of thought instead of its contradiction, and the apparent alienness of the world to intelligence disappears.

We must be contented with a general position here. Philosophy gives us only the ultimate terms of the explanation of nature. By showing the identity of the fundamental relations of nature with the conceptions of thought, she establishes the ultimate explicability of the whole in terms of these conceptions. This is, for Hegel, the identity of being and thought; and his Idealism consists in his maintaining this identity as a necessary belief of reason, any other belief being in the end reducible to a self-contradiction. For the rest, it is not necessary to hold that Hegel's account exhausts the fact of perception. His account of nature is virtually an account of it in its spatial relations: of the qualitative aspect of nature revealed by the senses nothing is said. The mention of this may be resented as a relapse into an empirical way of thinking, seeing that these qualities depend upon our sensuous or animal nature. But then it must be remembered that the very fact of this animal existence is the point left unexplained.

If we press phrases, which seem to assert that Nature is, in any literal sense, nothing more than "the other" of the thought-determinations of the *Logic*, we are sure to end in paying ourselves with words. The same categories appear, it is true, but displaced, re-arranged and repeated in an infinite variety of ways, endlessly tangled. Of this displacement and of the multitude of particular relations to which it gives rise, and which constitute for us the face of nature, it is well to recognise that no account is given by Hegel, or, indeed, can be given by philosophy. Hegel himself probably took a more common-sense view of his position than he generally gets credit for. In reference to the phrase describing nature as a petrified intelligence, he explained, that, when more exactly expressed, it meant, as the ancients said, that *νοῦς* ruled the world, or that intelligence was in the

world as its immanent principle—the universal of nature, as the species is the universal of a particular animal.

It is impossible to dwell at length upon the Philosophy of Nature here. It may substantially be summed up in Hegel's own statement:—"Nature is to be regarded as a system of grades, the one of which proceeds necessarily from the other, and constitutes its proximate 'truth': not, however, in such a way that the one is *actually* produced out of the other, but in the inner idea which is the ground of nature."¹ Philosophy traces the process of Nature towards Spirit in Mechanics, Physics and Organics. It will be seen from this that Hegelianism is quite neutral as regards a development theory like Darwinism. That is matter for the scientists, and to be decided on scientific evidence. What philosophy has to do with is development in the idea; an organism represents a higher and more complex stage of the Idea than an inorganic formation, and the human organism a higher stage than any of its pre-human ancestors; and that whether the transition from one to the other was ever made in time or not. Even science can never show us the actual transition—can never, as Dr. Stirling vividly puts it, catch Nature half in and half out. Philosophy with its principle of continuity not only allows but demands that the gulf between species and species be always more perfectly bridged over by intermediate forms. But the completed stages are all that we can ever see, be the difference never so infinitesimal; and to philosophy these stages are all stages of the Idea (represent ideas), and as such only have they an existence for thought.

Unless on a very external notion of means and end, teleology is not banished when it is shown that a series of actual transitions has been brought about by mechanical necessity in the shape of adaptation to environment and the struggle for existence. Means can only be judged of in relation to the end actually attained. Men of science are fond of insisting on the extreme naturalness of the means in question; but their extreme naturalness lies in nothing but their perfect fitness to ensure the end, which, as matter of fact, is realised by them. The forms that result are rational; nature is a system of rational forms, and culminates in the existence of rational beings. If all this be admitted in detail, then it is useless to deny Hegel's general position that the development in nature is the work and expression of immanent reason. We may apply to the position words which Kant uses in a narrower sense of teleology:—"It converts the systematic unity of nature in relation to the idea of a supreme Intelligence into a principle of universal appli-

¹ Hegel, *Werke* VII., i, 32.

cation."¹ But, as already indicated, it does not (or, at least, ought not to) attempt an *a priori* determination of particular connexions.

Hegel shares to some extent with the other Nature-philosophers the blame of having nursed extravagant expectations as to the powers of philosophy in dealing with nature. But in general he recognises the limitation of its province in terms sufficiently ample. Many, however, will regard his way of putting it as partaking of disingenuousness. It is the impotence of nature to hold fast the idea that sets limits to philosophy—not the impotence of the philosopher to match the subtlety of nature. Hegel is fond of expressing his contempt for nature as the realm of mere contingency. The chequered scene it presents is not to be rated higher than the equally casual fancies of the mind that surrenders itself to its own caprices. It is most unseemly, therefore, to desire that the Notion should take account of such petty contingencies. Now it is quite true, as he maintains, that the infinite particulars of nature serve none of the higher interests of reason, and that, consequently, neither philosophy nor reason is concerned to show that they must have been *so* and not otherwise. The relative position of the different parts of a landscape, the exact spot occupied by a rock in ocean, or, to take his own example, the continually changing configuration and grouping of the clouds are things in the strictest sense contingent or indifferent to reason. They are all strictly determined in a chain of necessity, but it would, as he says, be an empty trifling and the very pedantry of precision to follow out the links in each case. Still when we hear the surface of nature spoken of as that in which chance ranges unchecked, that simply means that philosophy takes no notice of individuals, as regards the time, place, and manner of their existence, and that all actual occurrence is beyond its sphere. Philosophy concerns itself only with the Idea of which the individuals are the bearers. While allowing, therefore, a certain justification to the category of contingency, as marking out by contrast the sphere in which philosophy is at home, we reject the appearance of knowledge which Hegel manages to convey by its means.

The same is true when we pass to the Philosophy of Spirit. The general form of personality is deducible, but not a living human spirit with its individual thoughts, feelings and actions. We deal, in Hegel's remarkable phrase, only with the universal individual;² the individual in the individual remains, as Schell-

¹ Kant, *Werke* III., 63.

² "Das allgemeine Individuum"—in the *Phänomenologie*, *Werke* II. 22.

ing says, the incomprehensible and inexplicable point in philosophy.¹ So also with history. Philosophy recognises history as the process of the Absolute Spirit or the record of the realisation of the idea of Freedom. But the philosophy of history can construct no individual event, and cannot exhaust the sum of contingent conditions, which made any period or epoch exactly what it was. There the historian proper has his province. Philosophy recognises only the thread of purpose that runs through this maze of particulars; and even the explicit form of that purpose it does not bring with it to the facts, but learns with ever greater fullness from conversance with the actual course of events. True historical insight is born of this union of the universal and particular. The two sides are perpetually modifying one another in the process of research, but the one is impossible without the other. Facts are infinite multiplicity, and cannot be studied or known at all unless we have some scheme of arrangement, be it ever so meagre. They are blind, we may say, without the universal of the mind, that introduces order into their chaos. But the universal, on the other hand, is an abstract and empty schema, the mode of whose realisation we cannot predict, till we actually see it in facts. The philosophic idea of history is, therefore, according to the way we look at it, an inevitable presupposition or the result of the ripest induction. There has been much talk about the arbitrary construction of history on the part of Hegel and his followers. As matter of fact, this may or may not have been the case; but it certainly is not involved in his philosophy. The philosopher comes to history with the same presupposition with which the man of science approaches nature—*viz.*, that it is rational. He *construes* history, as the other construes nature, under this presupposition; but both are equally dependent upon experience for their materials and for the discovery of the particular way in which reason has realised itself.

If this criticism be extended to the Absolute Spirit, it will be found that it is only by taking up the concrete life of the world and of history into the formula of the Idea that Hegel com-

¹ The admissions of Fichte and Schelling on this point are worth quoting. Fichte says:—"My existence as *man* among possible rational beings, and as this *definite* person among men appears as the absolutely contingent, and supplies the merely empirical element in our knowledge. Here all deduction has an end." (*Werke*, I. 489.) The passage from Schelling from which I have quoted runs thus:—"My limitation in general is explicable from the infinite tendency of the Ego to become object to itself; but limitation in general leaves the determinate limitation perfectly free, and yet both have their origin in one and the same act. . . . The latter is, therefore, the incomprehensible and inexplicable in philosophy." (*System des transcendentalen Idealismus*.)

municates to the latter a real value and content. This is admitted when the realisation of Spirit is seen not only in philosophy, in the element of thought, but also in religion, in the element of figurate conception, and in art, or immediate perception, as well as in the institutions and life of the rational state and in universal history. Philosophy is the supreme form, and comprehends all the others, in the sense of understanding their nature. But it could not do so, unless the knowing subject were more than a mere thinker. A pure intelligence could not see itself realised in art. "Art," says Hegel, "is the presentation and self-satisfaction of the Absolute in the form of the sensuous phenomenon."¹ But the self-satisfaction of the Absolute is our own feeling of aesthetic satisfaction, and that is the result of our sensuous-intellectual nature. Just as little could a pure intelligence enter into the life of the religious consciousness. The nature of man, in short, is not exhausted in pure thought; and if so, neither is the nature of the Absolute, nor the methods by which we may approach it. Notions, though the skeleton of reality, are no more than the skeleton; we have to clothe them with the life of our many-sided nature before our account of reality is complete. The office of philosophy is to show the movement of thought in all forms of life—to express them as it were in terms of thought. But the transcript of philosophy is only "grey in grey;" it has meaning only to those who have known the flesh and blood of reality.²

In the notion of the Absolute Spirit we have reached the end of our long chart and way. It is the notion of a Self which yet is realised in no individual self in experience. It is the first and third of Kant's regulative Ideas reduced to unity, with the second as the bond of their union. Kant, like Descartes, found his centre in the knowing Self. But Kant did not, like Descartes, separate the Ego from its "essence"—the organism of knowledge. The "being whose essence consists in thinking" became, in Descartes' hands a merely individual substance; and, as such, it was swept away in Spinozism by the flood of the divine life. The Synthetic Unity of Kant proved able to bear the strain in virtue of the great principle, which it implied, of the unconditionedness of thought. And now for the first time

¹ Hegel, *apud* Haym, *Hegel und seine Zeit*, p. 441.

² The following sentence of Hegel's sounds like a half-unwilling acknowledgment of this. He is speaking of religion and says:—"I do not deny that cognition may be one-sided, and that there may belong to religion besides, as essential elements, feeling, intuition, faith; just as to God there may belong more than the notion of him as intelligising and intelligised." *Apud* Haym, p. 403.

it became possible to unite the Self and God without the annihilation of either term.

That the threefold idea of Hegel is not merely regulative, it is hardly necessary to say: that is his continual contention against Kant and Fichte. The world cannot hang on a mere "Sollen". Metaphysic knows no ought-to-be that is not already realised. Final and efficient cause, real and ideal, are identical in a self-realising whole; an ideal which is in things, and not merely in our heads, is necessarily real at every moment. Yet we are sure to be assailed here with clamorous questions as to 'the existence of God' and the place assigned to Him in the system. To these the answer must be, that, for a philosopher of Hegel's stamp, there can be no greater absurdity than to deny the existence of God. All things are real only as they exist in God, and all philosophy is an attempt to define more exactly what God is. But existence is a crude category, which may mean almost anything, and which, to the unphilosophic mind, always means something which it can lay hold of, something which has its analogy in the limited circle of the person's own ideas and experience. When the question is pressed in this sense, we can only reply with Schelling:—"God never exists, if by existence is meant what we see in the objective world. . . . but He reveals himself continually".

The language used may appear mystic to the man who has never asked himself the ultimate speculative question. But, indeed, philosophy, as conceived by Hegel, was not intended to give a transcript, or at best a systematisation, of the so-called 'facts' of ordinary consciousness. It aimed at giving the inner essence, or ultimate truth, of all appearance. Hence his recurring assertion that the content of philosophy and of religion is the same, only the element in which it is recognised being different. Both aim at a synthesis of existence; both, therefore, deal with an object which cannot be described or verified like an object of experience. "Every philosophy is essentially Idealism, and agrees in this with religion. . . . Its Idealism consists simply in the fact that it does not look upon the finite as truly existent."¹ Every philosophy is, indeed, a poem, if measured against the prose of every-day life. It presents things not exactly as they meet us there, but as a complete, harmonious whole. Even Dr. Stirling confesses that the system of Hegel is to him "in a certain sense only a poem".² But like every great poem it does not deceive; it gives a higher truth. It clings to ordinary reality, till it has extracted from it its inmost essence, and that is what it presents us with.

¹ Hegel, *Werke* III. 171. ² *Journal of Speculative Philosophy*, XIII. 38.

But I have failed of my purpose, if it has not been made plain that Hegelianism, in spite of its soaring synthesis, speaks essentially the words of soberness. It puts an end to transcendent speculation, far more effectually than Kant, by showing that all the objects of such speculation are immanent in the world that now is. In fact no philosophy is so well-fitted as Hegelianism to withdraw men from fruitless questions, and to make them see the solution of all problems in the faithful work of their own sphere. It is hampered, moreover, by no presuppositions as to the empirical existence and course of things; it is ready, accordingly, to accept and rationalise any theory which science and history may establish. Idealism accepts all that physiology has to say about the dependence of thought on the organism, and is not discomfited by the most materialistic statement of the facts. It admits as a matter of course the empirical derivation of all our conscious life from feeling or sensation. "Everything is present in feeling," says Hegel, "and if any one likes to express himself so, everything that emerges in the consciousness of spirit and of reason has its source and origin in feeling."¹ The gradual building up of morality on the basis of our instincts and impulses, and the dependence of subjective morality upon the customs and institutions of the community and state are an integral part of Hegelian ethics. The Philosophy of Religion exhibits the development of religious thought from the fetish-worship and magical rites of the savage.

But materialists in cosmology and sensationalists in psychology think they have explained a rational universe and the human consciousness from that which is neither rational nor conscious. The evolutionist in morals and the naturalist in religion imagine that they have deduced morality and religion from non-moral and non-religious conditions. They seem to think that, in explaining the origin of a thing, they have explained away the thing itself. Hence the deleterious influence of such views, when spread among the unreflecting. The special merit of Hegelianism is that it sets all these results in their true light, and shows that they do not imperil the divinity of reason that hedges about our lives. "Source and origin," Hegel adds to the passage last quoted, "mean no more than the first and baldest form in which a thing appears." Nothing is explained by being merely thrown back in time. A history of phenomena is no metaphysic of the timeless presuppositions of that history.

Hegelianism is the conscious attempt to give such a metaphysic, and so to supply a perennial want of the human mind. Hegel gives us formulae by which we may express the nature

¹ *Werke* VII., ii., 117. Cf. also *Ibid.*, p. 311.

of the one great Fact or Life, which, in the widest sense, we call God. Progress in philosophy means reaching a fuller form of expression for that Life. If they do not explain everything, these Hegelian formulae are yet the best we have. It depends on ourselves to fill them up. According as we use it, a formula may be a Procrustean bed to which we make existence conform by cutting off its living members; or it may be expansive enough to allow free play within itself to all forms of life. This expansiveness will, I think, be found to belong to the Hegelian formulae; and they may be accepted even by those who may hold, with Lotze, that this "bold monism" undertook far more than is possible to human powers. Hegel and Lotze are at one in "the indestructible confidence of the spirit that the world does not only exist, but that something is meant by it".¹ This is Idealism in the broad Hegelian sense, because it is the assumption that the universe exists only as the exponent of that meaning. The meaning communicates value to what would otherwise be valueless; and all true philosophy aims, like Hegelianism, at throwing into words the 'truth' or perfect meaning of the universe.

ANDREW SETH.

VI.—NOTES AND DISCUSSIONS.

ON DEFINITIONS.

A DEFINITION is a "proposition declaratory of the meaning of a word" (Mill). As to this, I believe, all logicians are agreed, as well as that the meaning which it declares and as to which it affords us information, is the Connotation of the word, not its Denotation—the Comprehension of the notion, not its Extension.

It appears, further, to be generally admitted that the information thus given must be *complete*. The adequate definition gives us not only a portion, but "the *whole* of the facts which the name involves in its signification" (Mill); "the sum of all the properties connoted by the name: it *exhausts* the meaning of the word" (Bain). Mill even goes so far as to say:—"The definition of a name . . . is the sum total of all the essential propositions which can be framed with that name for their subject. All propositions, the truth of which is implied in the name, all those which we are made aware of by merely hearing the name, are included in the definition, if complete, and may be evolved from it without the aid of any other premisses."

According to the promise of logicians, the amount of information that we may fairly expect a definition to give us as to the connotation

¹ Lotze, *Metaphysik*, p. 180.

of the word defined is, therefore, very great. But when we turn to the examples of definition given to us in the manuals, we are far from finding these expectations realised. The stock example, "Man is a rational animal," is, confessedly imperfect.¹ But take the same definition as amplified by Mill:—"Man" (or a "human being") is "a being, corporeal, animated, rational, shaped so and so". Surely, "man" means more than this. Man is also a vertebrate, a mammal, maintains approximately a certain temperature, is not omniscient, is born and dies, and possesses a host of other properties, all of which we expect to find in any object of which the word "man" is predicated.

The contrast between theory and practice appears here to be so great (and we shall find it no less in the definition of any other natural object) that, if the statements were not so very explicit, one would be tempted to suppose some misunderstanding of the theory. Either our view of the connotation of the word is too wide: or the propositions given as examples of Definition are not real or perfect definitions: or it cannot be the province of the Definition to give the whole of the connotation.

On these points I propose to say a few words.

First, as to Connotation.

Every concrete name *denotes* certain things, or feelings, or actions, &c. (real or imaginary), which constitute the class, definite or indefinite, designated by the name; and *connotes* certain properties, qualities, or attributes,² which everything, properly called by the name possesses.³ The Denotation and the Connotation are, therefore, perfectly distinct, and each is, in a sense, the *meaning* of the word.⁴

Now, the Denotation of a general name is, as a rule, obviously quite

¹ Sir Wm. Hamilton, however, would appear to have considered "Man is a rational animal," an adequate definition, for he speaks of the partial concepts "rational" and "animal" as "together making up the comprehension of the total concept *man*"; and of the concept *man* as being "equivalent to *rational animal*". (*Logic*, Vol. I., pp. 143-4 and 147.)

² I here consider these three words as equivalent, and shall use them indiscriminately throughout this paper.

³ It will be observed that I include *proper* names among connotative words, considering them as names with a maximum of connotation and minimum of denotation. The limits of this paper do not admit of my attempting to justify this view here.

⁴ Mill limits the word "meaning" to the connotation; but I doubt whether usage bears him out in this. "Quid sit tempus," said St. Augustine in an often quoted passage, "si nemo quaerat a me, scio: si quis interroget, nescio". So, Boswell: "Then, sir, what is Poetry"? Johnson: "Why, sir, it is much easier to say what it is not. We all know what light is; but it is not easy to tell what it is." (*Life of Johnson*, year 1776.) There are numberless words, of which we know perfectly well what they denote, but have so vague a notion of what they connote that we can give no kind of account of it. Yet we believe ourselves to know what these words mean. St. Augustine and Dr. Johnson appear to me to have been in this case.

indefinite. Such a word as "animal," "flower," "man," &c., denotes a multitude of objects of whose number we have no conception. We know, with quite sufficient accuracy for ordinary purposes, what are the objects to which we are referring when we make use of the word, and have no fear of mistaking the objects denoted by the one for those denoted by the other. At the same time, we are well aware that the objects we happen to have before our minds at the time do not, or may not, comprise the whole of the objects properly denoted by the name. And not only so, but we may discover, or may be informed, that certain objects or species which we did not believe to belong to the class so denoted, really do belong to it; or that others, which we had mentally included, and to which we should have applied the name, do not really possess all the requisite attributes, and must not be called by the name.

Our knowledge of the denotative meaning of a word (however familiar) may thus be capable of increase, modification, or rectification. We may be taught.

So with the Connotation. On the connotative side a name means, *to us*, all those qualities common to the class named *with which we are acquainted*;—all those properties that are said to be "involved in our idea" of the thing named. These are the properties that we ascribe to an object when we call it by the name.

But, just as the word "man," for example, denotes every creature, or class of creatures, having the attributes of humanity, whether we know him or not, so does the word properly connote the *whole* of the properties common to the class, whether we know them or not.

Many of the facts known to physiologists and anatomists about the constitution of man's brain, for example, are not involved in most men's idea of the brain: the possession of a brain precisely so constituted does not, therefore, form any part of their meaning of the word "man". Yet surely this is properly connoted by the word.

Suppose an animal to be discovered, in all other respects resembling a man, but differing from him in certain important particulars of this kind. What would happen? The scientific authorities would have to decide whether the newly found animal belonged to the class "man," in spite of these differences, or not. If the decision were in the affirmative, physiologists would have to teach in future that the properties in question do not belong to the genus "man," but only to some species; and the word "man" would no longer connote the possession of these properties; but, if the decision were in the negative, the word would still connote the possession of those properties, and definitions of the word would in future have to be so framed as to mention one or other of these particular properties and so exclude the newly-discovered, non-human animal.

While, then, if the above is correct, the name properly connotes all the properties common to the whole class—some of them known and, probably, an indefinite number still unknown—its connotation (meaning) to different persons may be very different. To one man a name will suggest many more properties than to another; and our know-

ledge of the connotation of a name, as of its denotation, may thus be increased, modified, or rectified. In this respect also we may be taught.

We have thus the Denotation of the concrete name on the one side and its Connotation on the other, occupying perfectly analogous positions. Given the Connotation—the Denotation is all the objects that possess the whole of the properties so connoted. Given the Denotation—the Connotation is the whole of the properties possessed in common by all the objects so denoted. To each Connotation thus corresponds one and only one Denotation; to each Denotation one and only one Connotation; and each may, therefore, be determined by means of the other.

Such is the real, full Connotation and Denotation of the concrete name:—or, in order to avoid the appearance of unnecessary paradox, perhaps we should rather say, such would be the Connotation and Denotation *if our knowledge were perfect*: for it must be admitted that knowledge of the full meaning of our words in this sense is a goal from which we are far distant, there being probably hardly any classes (if, indeed, there be any at all) of which even the best informed already know either all the qualities or all the constituents, so that we may say, with Mill (although using his words in a somewhat different sense from what he intended), that “the meaning of a term actually in use . . . is an unknown quantity to be sought”.

I shall call this ideal meaning, the *theoretical* Connotation and Denotation of a word, as distinguished from the meaning it bears to any individual now using it. The actual or practical meaning of the word—in which it denotes to the user or hearer such members of the class as he knows, or supposes, to exist (actually or potentially, in the past, present, or future), and connotes such properties as he knows, or supposes, them to possess in common—may, as we have seen, vary in every degree, from the knowledge of the specialist to the vague conception of the most ignorant; in every case, however, generally falling far short of the theoretical meaning above spoken of.¹

Now, if this is so, and if the perfect Definition requires the enumeration of all the properties connoted by the word, it is evident that we can have no perfect definition, according to the theoretical connotation, until the whole of the properties common to the class have been discovered;—that until our knowledge of the object is perfect, we must be content with provisional definitions. But even if we confine ourselves to the practical connotation, the recitation of all the known properties—which would really be nearly all that we know about the class—would be a long process, and would in many cases require a whole treatise to itself.²

¹ Such theoretical meaning must, I presume, be that supposed, by those who look upon Logic as “formulating the most general laws of correlation among existences considered as objective,” to attach to the words by which they describe these objective existences.

² “A hundred generations,” says Mill (*Logic*, Book I., Chap. vii., § 4), “have not exhausted the common properties of animals or of plants, of

Now as, theoretically, each connotation corresponds to one, and only one, denotation, and each denotation to one, and only one, connotation, no change can be made in either without a corresponding inverse change in the other. Theoretically we might thus have, passing, as it were, through each concrete name, a whole series of names varying, in unbroken succession, from the maximum of denotation and minimum of connotation—a class based on the possession of only one common property—to the minimum of denotation and maximum of connotation—a class based on the possession of so many properties that there is only one object that can properly be called by the name—a singular or proper name.

Practically, indeed, this is not so:—first, because, even if we could form all these classes, we should have no practical requirement for so many names¹; and, secondly, because we cannot, in fact, form all these classes. In the first place, as already observed, our knowledge is not perfect, and this imperfection of our knowledge would occasion numerous gaps in the series. In the second place, so far as our means of observation extend, both properties and objects appear to go in groups.² Whether or not the doctrine of Natural Kinds is strictly true, for all practical purposes each class usually differs from that which appears to stand next to it in a great many qualities, while the apparently slightest change in the number of common properties usually makes a great difference in the number of the members of the class. Were we, therefore, to make our series as complete as we logically could, many of our class-names would have only a potential denotation: the classes would be empty: we should find no existing objects to put into them.

Practically, therefore, when we find a number of objects agreeing in certain properties, we shall generally find them agreeing in a good many more; and conversely, when we find certain properties possessed in common by certain objects, we shall generally find them possessed also by a good many more objects.

Now, it is here that the *Definition* appears to me to step in. To specify the members of a class by enumerating them is, in most cases, obviously impossible. The question, What are the constituents of the class? can be answered only by naming their qualification for

sulphur or of phosphorus.” Now, whether or not the common properties, that the hundred generations have *not* discovered, can be considered to be properly connoted by the names of those objects, there is no such question as to those that they have discovered. The net result of the investigations of a hundred generations can hardly be expected to be capable of being compressed within the limits of a single proposition.

¹ By “names” we do not, however, mean only single words. By combination of words we can name almost any class we want.

² If we consider, as I think we must, not only independent, but also dependent properties to be connoted, it is obvious that these properties must often go in groups: for the addition of any one quality will immediately add the whole of the qualities that depend upon its conjunction with the rest.

membership, *i.e.*, by stating properties all possessed by each of them, and by them alone.

That this should be done correctly is, evidently, of the first importance, and I cannot help thinking that this is the real province of the Definition. It singles out so many of the properties connoted by the word as, possessed by every member of the class, are not all possessed by any object out of the class, so that the possession of the whole of the properties recited in the definition is both a condition and a test of membership.

Now, inasmuch as, for all practical purposes, the properties go in groups, it is obvious that, for this purpose at least, the definition need not recite the whole of the properties common to the class—the whole connotation of the name—while, on the other hand, the smaller the number of properties named, the easier and more convenient will it be to apply the definition as a test.¹ Provided, therefore, that the test it affords is perfect, it will be a better definition in proportion to the *smallness* of the number of the properties that it recites.²

From this point of view, therefore, the definition appears a thing of simply practical utility. It is an instrument—as it were, a *measure*—by the application of which we can see whether any particular object rightly belongs to the class—is properly called by the name—or not. The information it affords is, thus, as to the Denotation rather than the Connotation, and it is no part of its duty to give the whole connotation of the name.

But observe: Although the definition recites only a few of the properties connoted by the name, no object is properly called by the name that does not possess the *whole* of the properties connoted by it. The use of the definition as a test, therefore, implies and assumes that every object that possesses the properties named in the definition will *also* possess the *whole of the properties common to the class*. To this extent, at least, the definition assumes the Uniformity of Nature.

The true definition, although reciting only a portion of the connotation of the name, is thus, in a sense, co-extensive, not only with the Denotation, but also with the Connotation of the name.

¹ It is, of course, here assumed that the properties are equally obvious or easy of discovery. Practically it may be easier to apply a definition which recites $m + n$ properties easy to discover than one that recites only m properties difficult to discover, and the former definition will then (*ceteris paribus*) be the better.

² The best definition will therefore, generally be the ordinary one by means of genus and differentia. If our definition of the genus is a perfect one, *i.e.*, if it recites the smallest number of properties connoted by the genus name that will suffice perfectly to characterise the genus, this, *plus* the differentia, must be the smallest number that will properly characterise the species to be defined. But this is to us a real definition on the supposition only that we already have a full definition of the genus. If not, we must again define the genus in the same way, and so on until we arrive at the summum genus, whose characteristic property together with the differentia of the successive species will then be the whole of the properties required to characterise (define) the name to be defined.

The properties recited in the definition, whenever all found united, always belong to an object *denoted* by the name, and are always accompanied by all the other properties *connoted* by the name.

Every object that possesses the whole of the properties named in the definition is *denoted* by the name.

Every property that is always found whenever the whole of the properties named in the definition are found, is *connoted* by the name.

So far we have dealt only with *concrete* names. The case of *abstract* names need not here detain us long.

By an *abstract* name I mean a name *denoting* the property, or complex of properties, connoted by a concrete name. Thus "whiteness" (abstract) denotes the properties possessed in common by the objects called "white" (concrete), and connoted by the latter term: "humanity" (abstract) denotes the complex of properties connoted by the concrete name "man" (or "human"), and so forth.

Every concrete name may, therefore, have a corresponding abstract name denoting the properties which it (the concrete) connotes: and, conversely, to every abstract corresponds a concrete, connoting the properties which the abstract denotes.¹

It is true that the denotation of the abstract name and the denotation of the concrete name are not precisely analogous. "Man" denotes any individual man: "honest" denotes every single object of which honesty can be predicated; but "humanity" does not denote the human form by itself, nor possession of reason by itself, nor mortality by itself, but only the entire complex of properties which are possessed by every being that can properly be called a man. And so of all other abstract words. It might, therefore, perhaps be more proper to apply some other word than "denote," such as "designate," for example, to the meaning of the abstract word. But what we call it is comparatively immaterial. The important point to observe here is, that the meaning of the abstract word is of one kind only, not of two, like that of the concrete name; and that the meaning is confined wholly to the connotative side, being, in fact, the *whole* connotation, of the relative concrete.

This being so, and Definition being, if my view is correct, the fixing of one meaning (the denotative) in terms of the other, it follows that, strictly speaking, *an abstract name can have no definition*.

We are here, apparently, met by the objection that innumerable abstract names *have been* defined. I think, however, that on closer examination it will be found that these definitions of abstracts are in reality only a selection of such of the properties denoted by the abstract name as are always accompanied by all the rest, and conse-

¹ We do not, as a rule, have or require abstracts corresponding to every grade of concrete name. Thus there are no abstracts corresponding to *proper* names. But I do not see why these should not be formed if we had any occasion for them.

quently serve to define the relative concrete rather than the abstract name itself. The objection is, therefore, more apparent than real. Thus "Life," for example, is an abstraction, and is defined by Mr. Spencer: "the continuous adjustment of internal relations to external relations". Now, what does this mean but that every being that continually adjusts its internal relations to external relations is what we call a "living" being, and will be found to have all the other properties denoted by "life"? And how can we see whether or not it is a proper definition otherwise than by comparing living beings with non-living beings, and seeing that the above-named properties are always present in the former and absent in the latter? The definition appears, therefore, to be in reality a definition of "living" (beings) rather than of the abstract "life". And the same will, I think, be found to be the case with every other definition of a really abstract term.

In order to avoid any possible misconception it may, perhaps, not be out of place still to observe here that, owing to 'transitive' variation of meaning, an abstract and a concrete corresponding in form do not always quite correspond in meaning. Although, therefore, the meaning of the abstract term is precisely the connotation of its relative concrete, and the inquiry into either may be substituted for that into the other—What are the common properties of things beautiful? may, *e.g.*, and often with advantage, be substituted for the abstract question "What is beauty?"—before making such a substitution we must be careful to see that we really have the right pair. Thus, for example, "conscience" and "conscientious" do not correspond, and we should not get a true account of the meaning of the word "conscience" by inquiring what are the common properties of the "conscientious". This is one of the great difficulties in the way of the substitution of concrete for abstract inquiries, a process by which, if it could be universally adopted, much mystification might be avoided.

The view of Definition to which the foregoing considerations would lead us is, therefore, as follows:

(1) Definition is of *concrete* terms only; every so called definition of an abstract term being, in reality, a definition of the relative concrete.

(2) Although the definition recites a portion of the connotation of the term, the part of the meaning of the term which it determines is really not the connotative but the denotative, it being, in fact, *an expression for the denotation in terms of the connotation*.¹

¹ The opposite process of determining the connotation by means of a portion of the denotation, although not dignified with a position in Logic like that held by the Definition, is familiar enough in practice, being, indeed, that by which all children learn to speak and to understand language. If, in ordinary conversation, I ask, "What is so and so?" the probability is strongly against my receiving anything like a definition in reply. Ordinarily a thing called by the name will be in some way pointed out to me, and I shall be left to find out the connotative meaning of the

(3) That, so far from its being a part of the duty of a good definition to give the whole connotation of the name, the enumeration of more of the properties connoted than are required for accurately determining the denotation, is a positive fault. *Ceteris paribus*, that is the best definition which mentions *the fewest* of the properties connoted by the name.

This view I beg to submit to the consideration of the reader.

Whether or not it is *all* that it should do, undoubtedly every good definition does determine the denotation in the manner indicated;¹ and, as regards point (3), every definition that enumerated a long string of properties would certainly be pronounced unworkable.²

Want of space has obliged me to pass very rapidly over the above, without pausing to discuss objections that may be urged against various portions. On two points which are sure to strike most readers I may, however, be allowed to say a few words before closing. (1) I have not said that the properties enumerated in the definition must be *independent*; and (2) I may appear to have lost sight of the distinction between definitions and *descriptions*.

As regards the independence of the properties, I have not, indeed, mentioned this, but it necessarily follows from the stipulation that the definition is not to enumerate more properties than are necessary. An object that possesses any property, must, of course, possess also all the properties derived from this, and to mention them in the definition would, therefore, be worse than useless.

On the other hand, I cannot at all agree with those logicians who

word from the specimen. As a general rule this process is, it is true, not quite pure in ordinary conversation. *E.g.*, "What are geraniums?" "Those red flowers before the window." Here a genus, "red flowers," is given by word of mouth and it is only the differentia that I am left to find out for myself from the specimens. By a suitable choice of specimens and accurate examination, the knowledge of the connotation so given may be made as complete as we please.

¹ "Man is a rational animal" proves to be a bad definition even from this point of view; for a man may lose his reason without ceasing to be a man.

² Prof. Jevons, in mentioning Dr. Thomson's "Immediate Inference by the sum of several Predicates," and his example: "Copper is a metal—of a red colour—and disagreeable smell—and taste—all the preparations of which are poisonous—which is highly malleable—ductile—and tenacious—with a spec. gravity of about 8.83," observes that "Dr. Thomson is mistaken in supposing that we obtain in this manner a *definition* of copper. Strictly speaking, the above is only a description of copper. . . . It may be shown that no amount of ordinary description can be equivalent to a definition of any substance" (*Princ. of Science*, ch. v., pp. 61-2). I should say that such an enumeration of properties, if full and correct, *is* a definition, but a bad and unworkable one; for it gives us much more than is required for the purposes of a definition. The above process, properly and fully carried out, would give us Mill's ideal of the definition of a concrete name: "the enumeration of the attributes which it connotes".

consider that derived properties are not connoted by the name: that it is only "all those attributes that cannot be derived (or inferred) from others" that "are to be regarded provisionally as an assemblage of primary qualities or, in logical language, the connotation of the term".

Surely there is something incongruous in saying that, if we define a triangle by the number of its sides, the word triangle does not connote having three angles: or, if we define it by the number of its angles, then it does not connote having three sides. Yet either of these can be inferred from the other, and they cannot, therefore, both be primary in the above sense. Again, we might define a "plane triangle" as "a rectilinear figure, the sum of whose internal angles is equal to two right angles,"¹ in which case having three sides and having three angles would both be derived qualities of the triangle, "requiring to be proved of it". These properties are all mutually dependent, and surely it cannot make any difference in the connotation of the term whether we choose to look on the one or the other as the primary. Does "circle" not connote "of the second degree," and "having a greater area in proportion to its circumference than any other plane figure"? Does "angle of 30°" not connote "having a sine = $\frac{1}{2}$ "? Surely they do to the mathematician! These are "constituents of the notions," which he cannot by any means get rid of.²

It may, perhaps, be worth while here to remind the reader that the very possibility of thus deriving or inferring one property from another requires a considerable amount of assumption or knowledge as to the constitution of things. Thus we cannot, for example, prove that the sum of the internal angles of a rectilinear triangle is equal to two right angles without the help of the axioms of geometry. Mill's requirement of a good definition, that we should be able to evolve from it "*without the aid of any other premiss*" all the essential propositions that can be framed with the name defined for their subject, would therefore oblige us either to take the words "essential proposition" in a very narrow sense or else to include in most definitions many of the laws of nature. Is it or is it not essential to a

¹ This Prof. Fowler mentions as a case of an attribute which "is not connoted by the term 'plane triangle,' but requires to be proved of it" (p. 38). Of course a definition by the number of sides or angles is much more convenient, and therefore, generally, far better than one by the sum of the angles.

² Prof. Bain appears to go to the opposite extreme when he says (*Logic*, Vol. I., p. 70), that the predication of newly discovered properties is *real* predication only on their first announcement and is merely verbal ever after. True, the word oxygen now connotes being magnetic to him who knows of this property; but surely that it is magnetic is just as real a fact of the thing called oxygen now as it was when it was first discovered, and no amount of knowledge of the fact can make it less so. So "mortality" is connoted by "man": but "man is mortal" is more than a mere verbal proposition, as every man finds in due time.

rectilinear triangle to have the sum of its internal angles equal to two right angles? Inasmuch as, provided that the axioms of geometry are true, no rectilinear triangle can have the sum of its internal angles equal to anything else, and no rectilinear figure that has the sum of its internal angles equal to two right angles can be anything but a triangle, I do not see how it is possible to answer this question otherwise than in the affirmative.

The other question as to my having apparently overlooked this distinction between Definition and Description, has already been partly answered in the foregoing. As I do not admit any fundamental distinction between primary and derived qualities, I cannot, of course, admit as fundamental the difference between Definitions and Descriptions so far as founded on that distinction. On the contrary, I look upon every real determination of the denotation of a term by means of any part of its connotation, as a real definition—although of course not all such definitions will be equally good or serviceable. On the other hand, we often do distinguish things, or classes of things, from others by means of qualities or accidents which form no part of the connotation of their names: and such propositions should undoubtedly be distinguished from definitions. If, for example, when asked, "Who is the owner of this house?" I reply, "The man in a white coat sitting on that bench; and a very disagreeable fellow he is," I have distinguished the individual in question from all others, and probably much more to the purpose than if, guided by Prof. Bain's definition of "Property,"¹ I "define" him as "the man who, having either acquired the house by his own labour, or obtained it by free gift or by fair agreement from those that have so acquired it, has the right of disposing of it". But in the former case I have done it without reference to connotation. It certainly forms no part of the meaning of the term "owner of this house" to be occupying a certain seat or to be personally distasteful to me, and the man in question will not forfeit his right to the name by rising from the bench or by proving to me that I wronged him and that he is exceptionally pleasant. Between such an account and a definition the difference is fundamental, and the former may very well be called a description.² In common language, however, I believe the word "description" is quite as often used of cases in which the object described is hardly, if at all, distinguished from others. Thus, if I say of a man that he is "a blustering fellow with a red face and brown whiskers, who generally wears a shooting coat and grey trousers," I shall be held to have described him, although the description will suit countless others quite as well as the man it is meant for.

¹ *Logic*, Vol. II., p. 166.

² Prof. Bain apparently considers a description by means of distinctive accidents to be a definition, although an imperfect one: e.g., of "diamond," that "it is, quantity for quantity, the most precious substance in nature" (*Log.*, Vol. I., p. 72). This is clearly not connoted by "diamond," for no fall in their value would affect their right to the name.

Throughout the foregoing pages I have spoken of the connotation of a name as comprising the whole of the properties common to the class named, and this is, indeed, one of the cardinal points on which the whole of the above turns; but, although I am persuaded that this is the correct view, I must not close these remarks without adverting to a difficulty out of which I must admit that I do not, at present, see my way. I mean the difficulty of finding a criterion for distinguishing between the property which is connoted and the accident which is not connoted by the name. It often happens that, so far as our experience reaches, an accident always accompanies the properties of an object, and in many cases some quite trivial accident is precisely what rises most prominently before the mind when we think of the object. If, for example, anybody always shudders when he sees a black beetle, the thought of a black beetle will suggest the feeling of disgust and the involuntary shudder as strongly as, if not more so than, the elements involved in his idea of the creature. Moreover, this effect is produced by any individual of the whole species. Every black beetle will make him shudder if he sees it; yet this fact is not connoted, even to him, by the name, and he knows that a black beetle would still be a black beetle if he were to get over his weakness. Why is this?

This difficulty is not likely to trouble us in practice. There are cases in which it may be difficult to decide whether what appears to be a property is so in reality, but generally there is little room for doubt. Gold is an object of desire to men; diamond is "quantity for quantity the most valuable substance in nature"¹; Switzerland is a very favourite resort for the English tourist: yet everybody knows that gold and diamonds would still be gold and diamonds though they were to become so common that nobody cared to have them, and that Switzerland would still be Switzerland though never another Englishman were to climb one of its mountains. What is really the distinction?

The property, quality, or attribute is, of course, of the essence of the thing: the accident is not. But this does not help us, for it is only saying again, in other words, that the one is and the other is not connoted by the name.

One feels tempted to say that by the attribute of a thing we mean, not the way in which it affects certain men and under special circumstances, but the way in which it affects all men at all times: or that we mean those modes of affecting us in which the greater part is furnished, not by the men perceiving or using it, but by the object itself. But such explanations are only very transparent cloaks to our ignorance or attempts to explain *ignotum per ignotius*. How can we know how a thing affects all men at all times? How can we even know how it affects anybody but ourselves? Moreover, many

¹ Prof. Bain certainly cannot mean that this circumstance is connoted by the word "diamond"; but his language is not quite clear on this point. See his *Logic*, Vol. I., pp. 72-3.

undoubted properties or attributes can be perceived only by certain men under special circumstances, *e.g.*, by trained observers with all the appliances of their laboratories. And to determine how much of an act of consciousness is contributed by the objective and how much by the subjective elements involved would require the knowledge of the transcendental philosopher, who has got behind phenomena to the things-in-themselves.

No doubt, satisfactory definitions of Attribute and Accident may be given. At present I can only say of them as Dr. Johnson said of light: "We all know what light is, but it is not easy to tell what it is".

ERNEST CHARLES BENECKE.

"A NEW DEPARTURE IN METAPHYSICS."

THE Rev. E. R. Conder in his *Basis of Faith*, the "Congregational Union Lecture" for 1877, dealt with the "Nature and Validity of Knowledge" in a chapter which now is removed to stand as an appendix in a second edition (Hodder and Stoughton, 1881). "I attach (says Mr. Conder) great importance to the views which I have endeavoured to establish, and which appear to me, if just, to furnish a new departure in Metaphysics." "It is not easy (he adds) to overrate the importance of dealing with the metaphysical root of scepticism;" and with a just sense of the moment of what he has essayed, he complains in his new preface that "no attempt has been made to discuss any of the main characteristic points". I therefore propose to make brief inquiry into the truth of his metaphysic and to examine its claim to novelty. He sums up his essay in twelve theses which he holds to have made good. For how many of them he claims originality he does not say. They have been already printed in *MIND* XIV., 297-8.

Theses (1) and (2) state that "human knowledge is collective," implying an interacting society of minds, and so no criticism of knowledge can be valid that proceeds from "the standpoint of a single *isolated* mind". That all this is abundantly evident, and that no one has ever attempted to dispute it in word or deed, we see at once so soon as Mr. Conder explains that by "knowledge" he means a well-ascertained and provisionally permanent consensus, such as is what we call "common sense," or when further purified, compacted, and organised "science"—*e.g.*, "Chemistry," to take his own instance. Of course these are social products. "Knowledge as we possess it could never have come into existence without the interaction of at least two minds." That goes without saying. And when has there been a critique of knowledge "from the standpoint of a single *isolated* mind"? It is quite true that Kant, Fichte, and Hegel base their "Kritik," "Science of Knowledge," and "Phenomenology" on the reflective analysis of their own minds. But they were not "single isolated minds," "absolutely self-educated," as Mr. Conder tells us

fishes are ; nor was any one of them the impossible infant cast on a desert island without even inheritance in his brain, and suckled by some amiable wolf. The existence of other selves may be "one of the foundations of knowledge" as we possess it ; but it does not follow that their existence is "not one of the problems" of metaphysic. The question "How do I come to know of them?" is quite legitimate ; and we should be begging it, if we put them, as known existents, amongst our data, as Mr. Conder seems to propose.

The next four theses form an interdependent and correlative group. (3) Knowledge involves (*a*) correlativity of human minds and nature, (*b*) correspondence and communion of human minds *inter se*, (*c*) correlativity of "the parts and elements of nature". This perfect correlativity of all minds and things forms one harmonious universe, suggesting a "First Cause" and central intelligence. (4) It follows that an adequate doctrine of "the relativity of knowledge" concerns very much more than the mere correlation of subject and object ; (5) that the possibility, truth and value of knowledge depend on the universal correlation ; and (6) that there are no things-in-themselves, *i.e.*, out of all relation. If there is anything anywhere enjoining the *otium cum dignitate* of a thing-in-itself, it is certainly not in this absolutely correlated universe. Most that is said in these four theses is perhaps beyond question ; but it has all been said many times before. Renouvier and others have repudiated things-in-themselves. Kant only coquetted with them in a half-hearted way. Hegel may well be called the prophet of absolute correlativity ; and Spinoza was his forerunner. Besides, his "*causa sui et mundi*" and his infinite attribute of thought or consciousness that subsumes and comprehends all the others, anticipate Mr. Conder's "first cause" and "intelligent One". To go on merely naming Mr. Conder's predecessors in the line of these four theses would be an almost endless task ; and any discussion of their speculations lies beyond the compass of this brief paper. When (p. 381) Mr. Conder tells us that "universal knowledge oozes forth from every pore of nature," and at the same time that "all nature is built on" this ooze, one feels that *his* speculation at least is "passing strange". On the other hand, when he charges "the Philosophy of the Conditioned" and to some extent the Critical Philosophy with representing "as our *disability* that which constitutes in fact our ability, namely, the mutual relation of the human mind and the universe," one who had been indoctrinated by Hegel would be disposed to agree with him. "Metaphysicians have always been trying to get *at the back* of knowledge . . . impossible quest !" See Ferrier anywhere : that sentence is the soul of *his* metaphysic. Again, "Properties are relations ;" "that which has no properties is nothing". Exactly so. *Seyn = Nichts*. "Absolute existence is a phrase absolutely without meaning." So have said Renouvier, Hodgson, and others.

Thesis (7) is to the intent that knowledge is or ought to be a body of true and certain judgments. Everybody says that. It is everybody's ideal of Truth. After difference, it is pleasant to find oneself

in agreement with Mr. Conder where he says that "as the presentments of consciousness are not judgments or statements of fact but primary facts, they cannot be unreal" and only "Our *interpretation* of consciousness may be erroneous". But here we are together on the common ground of Modern Psychology, and join hands in accepting the ordinary doctrine of illusion and error. It is impossible to indicate all the common property that we two, along with the rest of the philosophical world, have a joint interest in. This sample must suffice.

(8) "That our primary judgments have no logical subjects, but are predicated either of phenomena immediately present to consciousness or represented in memory, or of those realities of which phenomena are the natural signs, *viz.*, self, other selves, or causes—that is forces or centres of force—external to the mind." The first clause of this rather complex thesis is simply an enlargement, as Mr. Conder admits, of Dr. Mansel's "golden sentence" that "the unit of thought is a judgment". "Every concept is a condensed judgment." And there must be judgments that do not imply any previous judgment, and therefore do not involve a "logical subject" or concept. Judgments of unity and plurality, of identity and difference, of quantity, of quality, of degree, &c., are "primary," "immediate," unanalysable judgments. In fact, Mr. Conder's "primary judgments" are for the most part simply Kant's or Renouvier's Categories in concrete form and application. There will be nothing revolutionary in this for their followers. He also calls every single reaction of attention on a sense-presentment, a primary judgment, as when I mentally say "This is green". That is an affirmation no doubt. And he conjectures that there may be as many "intellectual senses" or "distinct intuitive faculties" as there are "primary attributes" and, therefore, kinds of primary judgments in this sense! This is perhaps innovation in psychology, and there is no great harm in it, if there may be little profit. But, then, there are "primary judgments of reality," whereby we penetrate the phenomenal to the "substantive outward realities"; and this is a more serious matter. For when I not merely say "This is green" but "This is a pea," my thought touches matter *per se*, and when I say "I am I," I am in contact with mind *per se*—both quite unphenomenal. Well! this has all been argued before by Reid, Hamilton, &c., and redargued by Berkeley, Kant, Ferrier, &c.; and Mr. Conder does not contribute anything new to the controversy. It rather tends to confuse the issue to clump together Time, Space, Persons, and Laws of Nature as unphenomenal realities. And in his discussion he does not sufficiently remember that with his opponents the phenomena are the realities and *vice versa*; that phenomenal means relative, and that with himself all knowledge is such and therefore phenomenal; that "transience" is not a necessary connotation of "phenomenon"—*e.g.*, Time is a permanent phenomenon. When denying (as part of his argument against phenomenalism) that we can construe the consciousness of others only in terms of our own, he thinks it enough to adduce the case of an infant longing for its

absent mother—"not," he says, "for the reappearance of certain phenomena but the sense of a protecting presence!" What else is phenomenon but "*presence*" in consciousness? Then the child's "intuition of personality overruns its bounds". "He attributes personality to inanimate objects." What is this but construction in terms of consciousness? "Phenomena are portions of consciousness," and "everything of which we can be directly conscious is a phenomenon". How then can knowledge be other than phenomenal?

"*The one abiding element of consciousness is the sense of permanent self, which has no relation to time (!), to space or to any phenomenon in particular.*" And yet "self is not a phenomenon". Is not this to say and gainsay in the same breath? But, again, we touch external nature not at one point only, but two, "*perception and action*". "And what is action?" "It is *Will*, measuring itself against the forces of nature, and of other wills, *i.e.*, against reality." Force is unconscious will. Will is conscious force. Will or Force is Reality—Substance, *Ens!* "Behind the screen of phenomena stands the abiding reality of Force." (So says Mr. Conder with Spencer.) But what concrete fact of consciousness or knowledge do these surreptitious abstracts stand for—or rather cunningly supplant? Simply the feeling or sense of effort, which is one single indissoluble fact or phenomenon of consciousness, and is not to be broken up without the absolute loss of all meaning. Like Ferrier's "*perception-of-matter*," it should therefore be printed and read and understood as one word for one fact—thus, *Feeling-of-effort*. That is the sole possible datum for all these speculations about force and will, and it does not justify or support them. It is purely phenomenal; and out of the phenomenal in consciousness, only the phenomenal in thought or knowledge can come.

Thesis (9) requires no special notice. It has virtually been considered under the last. (10) affirms that the truth of judgments lies "in a correspondence of relations"—"in the facts of nature being so related to one another as our judgments affirm them to be". No one will deny that; though Mr. Conder thinks he is here contradicting and improving on Locke. Mr. Conder says that Truth "depends simply on the correspondence of the relation between the signs with the relation between the realities for which those signs stand". Locke says, "Truth seems to me to signify nothing but the joining or separating of signs as the things signified by them do agree or disagree one with another". Where is the difference?

The last two theses concern "the validity of Human Knowledge," and affirm that we are bound to trust "our own faculties—notably memory and reason"; that, accordingly, thoroughgoing "philosophical scepticism" is impossible suicide; that the subjective ground of all scientific certitude is an implicit and unavoidable faith, and that "for objective verification," we have the fulfilment of expectation and prediction. All this is clear enough, and belongs to the common stock. But perhaps enough has been said to show that it will be somewhat difficult to concede that Mr. Conder has furnished either "a new departure in metaphysic," or a true one.

J. BURNS-GIBSON.

REFLEX EFFECTS OF EXTEMPORE SPEAKING.

Of all the intellectual arts, not the least purely intellectual is the art of public speaking without manuscript or notes. There can hardly be any other that so imperatively demands good mental habits; in fact, the more I study the connexion between the excogitation of ideas and their expression—the more am I convinced that, to become an accomplished speaker, the most essential means to be employed is the discipline of the brain; nor is it possible to over-estimate the value of a powerful and cultivated mental organisation to the man whose profession it is to influence others by oratory. I have therefore thought it would be a help to the students of mental phenomena, if one whose calling is that of a public speaker and whose duties in that capacity inexorably demand the exercise of his powers at frequent and stated times, were carefully to note (so far as possible) the varying effects produced by this intellectual exercise and felt on his own brain and the other parts of his nerve-system. For example, suppose a lecturer has been straining unduly any one faculty, does he, after he has finished his labour for the time, feel any effect on his brain; and if so, what are the nature, the locality, the duration, &c. of that effect? This course of investigation would necessarily be difficult; but if even a feeble attempt were made to carry it on during a sufficiently extended period, further knowledge of the functions of the cerebrum might be acquired, and past discoveries and conjectures confirmed or disproved. Such observations would also be of no small value to the student of elocution, and to the public speaker at the bar, in the pulpit or on the platform.

For several years I have been in the habit of making these observations—solely for my own use at first, without any reference to the mysteries of mental science. My present desire is respectfully to lay my notes before the readers of *MIND*—leaving them to make what use of them they will. For some time back, the effects have grown feebler and consequently more difficult to chronicle; till I am now scarcely sensible of any after-effect. And this suggests another idea: Not in the case of the perfect orator, to whom public speaking is a second nature, but in that of the raw beginner, whose brain is on the rack while he speaks, are the subsequent effects so easily discerned and noted.

It would be impossible to understand properly the drift of this paper without previously being made acquainted with my method of preparation for public speaking. I begin with keenly conceiving and vividly imagining the subject—holding it up like a picture before my mental vision. I then analyse it into its parts; next these parts into a second grade of division; holding up each division before my mind's eye, I discover if it ought to be further analysed; and so on. These particulars I range according to their natural order, observing the link that binds each to each, and commonly eschewing all *effort* to commit to memory, as the mere association of the ideas by their natural links is sufficient to make them arise spontaneously. I now, by a synthetical

process that hides the almost mechanical cutting up of the main idea, teach myself to think out the whole subject in the order thus arrived at, and so I am ready to speak. The whole of this process is carried on in the mind, except that I indicate on a slip of paper the line of thought I am to follow, under each division or section of discourse. Discarding the paper, I stand up before my audience, and begin to *think* on the subject again. I now cannot help *thinking my thoughts* in the same order as I had previously taught myself to do. Images, not words, pass before my mind; I seem then face to face with realities and there is some power in the brain which, if not interfered with, will cause me to express what I imagine before me. The multitudinous failures of which I have been too painfully conscious, have been, I may say exclusively, due to a sort of timidity lest this method should not sufficiently secure the very things in which I have failed.

It must be evident that mental work such as this is a tax on the cerebral energies, and it is precisely when the overworked part of the brain in its own way protests against any further continuance that the judicious observer may note what part of the brain seems to be affected by the kind of mental work in which he has been engaged.

The following are my principal observations:

I. In all cases of which I have taken notice, when any faculty of the mind has been exercised too much without variety, the first result is a sense of weariness and satiety, and a craving for an opposite kind of study, followed by great eagerness in entering on the new pursuit when the craving is indulged. If, from whatever motive, I have not given way to this desire, the next feeling is that of uneasiness in particular parts of the head—parts varying with the different powers then at work. The third stage is acute pain in the same parts. In the first stage the sense of weariness is driven away by a new and especially by an opposite kind of pursuit, but in the last stage the pain remains for a time even when a totally different part of the brain is employed; it may remain for hours, being most perfectly driven away by total cessation of work and by sleep; but even next day after a refreshing slumber, this effect has appeared in another form—a sensation as if something foreign had found its way to that region of the head but was now gone—a feeling presumably due to the previous gorging of the blood vessels. Further than the third stage I have never permitted myself to go.

On the other hand, there is, up to a certain point, a sensation of pleasure in the mere exercise of each faculty—a sensation felt in the same place as the pain is afterwards felt, but not so decidedly, partly because the emotion of pleasure seems to draw into action other parts of the nervous system, and the effect is a mixed one; and partly because, when the pleasure has been most powerfully felt, my mind has always been so much engrossed with the subject of study that there is a great difficulty in observing the *locale* of the feeling, and the effect does not last for any time after the actual study ceases.

II. One of the most agonising of mental states is what is commonly

known as "stage fright"—and public speakers of the highest powers have often declared their first efforts to meet the gaze of many eyes to have been real torture. The reader will be helped to understand some of my subsequent remarks, by the knowledge that I never experienced "stage fright". From the very first, I never lost myself through nervousness. The first time I rose to address an audience, I was perfectly cool. After being licensed, I preached to a large congregation without notes, and was as much at ease as I am now. My self-confidence helped me. At that time I did not know the dangers and difficulties of the path before me, and, ere I discovered them, I was able to look at them calmly. My physical constitution must have been a factor in the cause of self-command at this stage.

It will be necessary to keep this in view as the reader proceeds.

The following remarks refer partly to the preparatory discipline, partly to the actual exercise of public speaking.

III. When the process of analysis has been unduly prolonged without intermission or variety, uneasiness and subsequent pain are felt in the middle of the top of the head. This pain is never so severe as that in some other cases.

IV. After very strong emotion while preaching, sensations of uneasiness have been felt towards the back of the head. These are not unfrequently accompanied by a loathing of food if presented immediately after the sermon is over. Squeamishness is frequent; twice the nausea was so great as to produce vomiting.¹ Adequate and varied expression given to the emotion while lasting, is a very great aid in the prevention of these unpleasant results.

V. When many parts of my mind have been called into vigorous play, and when, in consequence, I have been speaking with vehemence, a peculiar, indescribable sensation makes itself felt in the back of the head—a feeling as if something were pulling it backwards and downwards. This is perhaps the most singular and disagreeable effect I have ever felt. Akin to it and caused by the same thing and sometimes accompanying it, is a feeling as if I were to fall sideways—a fear that I could be easily knocked over; I seem to need steadying; the automatic movements of the limbs are conscious and voluntary—a volition different from that of a man purposely putting down his foot in a certain position; a greater effort seems necessary.

This state of mind has now ceased to trouble me and I think the reason lies in my succeeding in keeping my voice on a lower pitch in the more impassioned paragraphs, where it is apt to rise too high.

VI. I have never had the smallest sense of weariness in exercising my imagination. Indeed the more vividly the objects on which I happen to be speaking appear before my mind, even when they almost seem real, the more does my mind crave for a continuation of the mental panorama. This is the most intense, the most enduring and

¹ I have read somewhere that the celebrated George Whitefield almost always vomited after returning from preaching.

yet the calmest pleasure I have in the exercise of my profession ; a pleasure which has never yet palled upon me. In exerting this faculty, however, while engaged in my study, I have to be careful to beware of continuing it up to the point of retiring to rest, for by dire experience I find that the energetic concentration of attention upon these mental images immediately before sleep makes it unsound and disturbs it with dreams. Sometimes in the pressure of work I have prolonged this kind of study far into the night ; but nature invariably revenges herself in the manner described. To obviate the difficulty, I so arrange my work that, this exercise is engaged in early in the day, if at all ; as the best preventive of these disagreeable effects is to go into company.

My observations give no clue to the locality of the brain in which this function is performed, but the slight sensations I *have* felt have been about the front and top of the head—too vague however and too indefinite in position for me to determine.

VII. A prolonged effort of the power of conception undoubtedly affects me on the top of the front part of the head. The sensation is not a painful one ; like that produced by the exercise of the imagination, it is a pleasure that never palls upon me. But as I continue striving to conceive, to understand, I gradually become conscious of using the aforesaid part of the head. One of the most important rules a speaker must observe is clearly to conceive each truth he utters—to distinguish it from all others and to know exactly what he means. In some species of composition this faculty is frequently called into play ; and some sermons and lectures demand the exercise most imperatively. In such instances, I should never hesitate to point out the exact spot where the brain is at work. I must not forget to state that, on retiring to my study after an evening's labour of this nature, my mind is in a state of abnormal activity ; then difficult problems afford relief and the driest books are interesting. The brain grasps thought with eagerness. My whole being seems on the alert.

VIII. Part of the last mentioned region, and that portion lying immediately behind it, are affected by the effort to recall previously arranged ideas. To any one wishing to learn the art of extempore speaking, an adept would be sure to give the advice—Leave nothing to be called up by a conscious effort of memory ; nothing is more fatal to fluent utterance than the struggle (a generally vain one) to recall a lost word or a forgotten idea : when addressing an audience, a man must speak what he at the moment thinks, not recite what he has previously learned. Public speaking is quite different from reciting, which is mere reading from the tablets of memory. But before I had learnt to make this distinction, I often feared to trust myself to the "inspiration of the moment" (a dangerous phrase but implying a certain amount of truth), and instead of uttering the present thoughts flowing from my mind, I laboured to reproduce my previously-prepared train of ideas. It not unfrequently happened that my memory failed at the most critical moment. Then ensued a

desperate and powerful attempt to recal the lost thought—a most painful experience. Two or three such attempts in the course of a sermon have been sufficient to cause a loss of mental tone for days; and I have often sincerely wished I had chosen some more easy if less noble profession. In this condition of brain, the pain was massive rather than acute, and while felt, as I have stated, towards the back part of what seems to be the region of conception and behind that region, was also diffused in a less degree over the greater part of the whole brain.

IX. The process of impressing a set of but slightly connected facts on the mind so as to be recollected at a given moment in a certain order (a process sometimes necessary but generally to be avoided by an extemporaneous speaker) produces a sensation in a totally different locality of the head. This is the most marked of all the effects I have experienced; but that may be due to individual mental constitution, as I have always felt myself deficient in what is sometimes called "voluntary" recollection *i.e.*, in which ideas, facts, dates, &c., do not spontaneously arise in the mind. My attention to the general subject of this paper was first awakened by the exactness with which certain pains followed the effort now under consideration. These pains, when the effort has been severe and prolonged, make themselves felt acutely on the top of the middle of the right side of the head. After a time they become excruciating and continue for many hours. A sleep gives great relief, but even after all pain is gone, a most disagreeable feeling remains for a time. A long walk through rural scenes is the best cure for this and almost any other trouble of the would-be orator—change of scene, muscular exercise and the open air operating like a charm on the jaded mind.

X. The vigorous use of so many faculties as are required by the so-called extempore speaker frequently results in want of sleep. From this affection I have suffered greatly, especially in the earlier part of my ministry. At first I rarely slept, after preaching, till 3 A.M., and very often rose early on Monday morning without having for a moment lost consciousness in slumber. This prevented the rapid recovery indispensable to one called on to give himself at once to other mental labour. Nowadays, I generally sleep well and I desire to record my conviction that want of sleep results from something wrong in the habits of the speaker suffering from it. Let us learn to *think and speak naturally*, working and resting and taking due care of our bodily frame, and public speaking will become to us a very healthy intellectual pursuit. It is one of the functions most proper to man, and any evil result is abnormal.

The mind suffering from sleeplessness thus caused is in a state of unnatural activity. Its energy seems perfectly extraordinary. It seems to crave for work and will work on in spite of every attempt to curb it. It is like an unmanageable steed; it *will* run and no bridle can control it. This happens mainly when the front part of the brain has been employed as in excogitating, understanding, imagining, remembering, reasoning, &c.; whereas when strong emotion manifest-

ing itself in abundant action has ruled the hour, calling into requisition the hinder part of the head, I can fall asleep without difficulty.

XI. My observations lead me to believe that the conversion of thought into language is a function of the lower part of the front of the brain. Whatever be the case with others, this is not an exercise that readily exhausts me; before I feel any pain resulting from it, general fatigue of the body sets in. I have sometimes however experienced a sort of slight depression in the region named, a sensation readily removed by my speaking to different persons on an entirely new subject.

The above observations are not the result of preconceived opinions. I concern myself but little with the views of any one school in mental science. My profession demands my attention to another subject. The study of theology, however, will not permit of indifference to the conclusions of psychology. There cannot be correct theology without knowledge of human nature, and in particular without knowledge of the intellectual, emotional and volitional powers of man. No one therefore more ardently desires the perfecting of mental science than the candid student of scientific theology. And it would be no small pleasure to me, if, by these independent investigations, I were to aid even feebly those earnest men who from another standpoint and in another sphere are striving to arrive at truth.

DUNCAN MACGREGOR.

DEFINITION OF "SENSATION".

THIS term, regarded in itself, has a clear and definite connotation; but it belongs also to a group consisting of three members, and so needs to be carefully distinguished from its close companions; and it has, besides, various special meanings, which in like manner demand our consideration—meanings determined by the word wherewith it is contrasted. The full handling of the term, therefore, will consist—first, in analysis, or presentation of the constituent elements; next, in definition by discrimination, or marking off the so-called synonyms; and, last of all, in adducing the correlatives or contrasts. The related group is—*Feeling, Sensation, Emotion*; and the contrasting terms are—*Perception, Idea, Reflection*.

I. An adequate analysis of Sensation discloses the three following facts:—(a) an affection of the sentient organism in a distinct locality or seat; this affection usually arises from an external stimulus, but may be the result of an altered condition of the organism itself; (b) a mental state or consciousness, of the nature of a feeling, and determined, as to its specific character, by the organic affection; (c) an outward manifestation of this consciousness—its corporeal or bodily expression. Of these, the first is the indispensable condition and invariable antecedent of the phenomenon, and the third its invariable consequent or result; but the second alone constitutes the sensation proper, and this sensation is always a thing *subjective*. Criticising

Jacobi, Hamilton (Reid's *Works*, p. 795 b. n.) defines it—"The mere consciousness of a subjective sensual state,—of the agreeable or disagreeable in our corporeal organism": which definition may indeed be accepted, if we regard the second clause as pointing to the emotive¹ aspect of sensation, not as exhausting the characteristics, and if to the word "sensual" we give a very liberal interpretation, and understand by it,² not merely the five senses, but the "internal senses" or organic sensibilities, and the muscular sense as well. Brown says (*Lects.* xvi., xvii.)—"A state or affection of the mind, arising, immediately and solely, from a state or affection of the body, is the only definition which can be given of a sensation"; and again—"Sensations are those mental affections which are immediately successive to certain organic affections, produced by the action of external things". But Brown is here less satisfactory than Hamilton, inasmuch as he does not attempt to give the differentia of sensation as a mental state. For the same reason, we object to Mansel (*Metaphysics*, p. 68)—"Sensation proper is the consciousness of certain affections of our body as an animated organism": and we cannot consider the following distinction as psychologically valid (*Ib.*, pp. 152-3)—"The essence of the bodily sensation consists in its being a nervous affection of a particular kind. The accident, or emotion, which in certain cases accompanies it, is, that that particular affection is agreeable or disagreeable." The fact seems to be, that *all* sensation is feeling; and in *some* of the sensations (e.g., the organic) the pleasure or the pain becomes the prominent factor.

We take it, then, that Sensation is a purely subjective fact dependent on the affection or impression of the organism; but it is not, on that account, to be regarded as an entirely passive affair. On the contrary, like all conscious phenomena, it implies change; and to whatever extent it does so, is to that extent active. Even common language might guide us here. For common language (following the French) uses Sensation to denote something new, fresh, and exciting—as when we speak of "creating a profound sensation," or of such and such a person "being unable to live without sensation": and what is this but to acknowledge, on the part of popular usage, that Sensation reposes on relativity, and involves an active element? A sensation, in Ferrier's use of the word (*Lectures*, &c., II. 175)—that, in which is involved "no act of discrimination, no act of any kind"—is a chimera.

II. Feeling, Sensation, Emotion: these are often employed as exact equivalents; but the three things they represent are quite distinct. Take, first, Feeling.

This is a term of equivocal import; having now the narrowest, now the widest, signification.³ Sometimes it stands for consciousness in

¹ We use "emotive" as the adjective of the noun "feeling," restricting "emotional" to "emotion".

² As is now commonly done—after Brown, Bain, &c.

³ Cf., in this respect, the Latin word *Sensus*; as used, for instance, in the philosophical works of Cicero. *Sensatio*, of course, is not pure Latin.

general; sometimes it is the generic name for one whole class of mental phenomena—Feeling, as distinguished from Conation and Cognition; sometimes it is confined to one or other of the species of this class; and sometimes it is restricted to a single variety of the species. Thus, for instance, both in literature and philosophy, it has frequently been employed as a synonym for Touch. We find it so in Reid, and we find it so in Addison. The latter says (*Spectator*, No. 411)—“The sense of Feeling can indeed give us a notion of extension, shape, and other ideas that enter at the eye, except colours; but, at the same time, it is very much straitened and confined in its operations, to the number, bulk, and distance of its particular objects”. Again, we frequently identify feeling with some special emotion: we use the word to designate sympathy or “heart”—as when we speak of a “man of feeling,” meaning thereby a man brimful of the milk of human kindness. Once more, feeling stands for conviction, opinion, or belief—as when we say, “My feeling is that you are right”; and, again, for impulse, inclination, or desire—as in, “My feeling is to embark in this project”.

And, as with Feeling, so with Emotion: it too has suffered greatly from abuse. There is a popular usage and there is a philosophical usage, and matters are not mended by the fact of synonymous complications. In common parlance, Emotion points to depth or intensity of feeling; philosophical analysis lays the stress on complexity. But when in ordinary conversation we employ the adjectival form “emotional,” we usually do it with philosophical precision. “A sensitive nature,” in the mouth of the plain man, means one thing, and “an emotional nature” quite another; and the distinction is exactly that which is drawn by the philosopher. Again, Emotion has often been identified with Passion. But passion is only a single manifestation of emotion, or, rather, it is emotion in one particular phase and degree of it (*perturbatio*). Thus, love and anger are both emotions: we call them passions only when they rise to the pitch of extreme agitation, or when they thoroughly engross and overwhelm us. Moreover, we sometimes call a man's ruling, guiding principle a passion—*e.g.*, power, ambition, wealth; but these, until they are established, settled ends or motives, are simply emotions.

The question, then, recurs, What, philosophically considered, is Emotion and what is Feeling; and how are the two discriminated from Sensation?

Three possibilities present themselves here. We may either take sensation as the genus, and arrange feeling and emotion under it as species; or we may regard emotion as the genus, allowing feeling and sensation to stand as species; or we may give the generic place to feeling, and then we have as species sensation and emotion. Something like an approximation to the first of these plans is discoverable in Reid. When Reid does not employ feeling and sensation as mere synonyms (which is his usual method), he distinguishes the two thus (Reid's *Works*, pp. 229-30 and 311 b):—“Sensation is a name given by philosophers to an act of mind, which may be distinguished

from all others by this, that it hath no object distinct from the act itself. . . . The word *feeling* is used to signify the same thing as sensation, which we have just now explained; and, in this sense, it has no object; the feeling and the thing felt are one and the same. Perhaps, betwixt feeling, taken in this last sense, and sensation, there may be this small difference, that sensation is most commonly used to signify those feelings which we have by our external senses and bodily appetites, and all our bodily pains and pleasures. But there are *feelings* of a nobler nature¹ accompanying our affections, our moral judgments, and our determinations in matters of taste, to which the word *sensation* is less properly applied"; and, again—"feeling is only a more refined kind of sensation". But this is clearly objectionable, as resting on a thoroughly inadequate analysis of the phenomena, and could be tolerated only so long as Mind was handled on the bipartite principle—Intellectual Powers on the one hand, and Active on the other. We find the second plan in Brown. Mental phenomena, with him, are either External or Internal; they are Sensitive Affections, *i.e.*, such as are determined by the presence of an external object, or they are mental states not dependent on an external object, but arising because of some previous change in the states of the mind itself. Of these Internal Affections there are two classes, *viz.*, Intellectual and Emotional; and the Emotional include (*Lectures*, xvi.) "all, or nearly all, the mental states, which have been classed by others under the head of active powers". The objection here is, that Emotion comprehends far too much. A great deal of what the older writers treated under Active Powers is not, with any propriety, designated Emotion; while some of the Emotions were handled by them under their first division—Intellectual Powers. We are driven, therefore, to the third of the above plans; and this is the one that has been adopted by Prof. Bain, for instance, and is now pretty generally followed. Feeling is to be regarded as the genus (marked off from Intellect and from Will), and the two species are Sensation and Emotion. The point of importance then comes to be, What are the defining characteristics of the two species? where shall we discover their specific differences?

Both, as we have already said, are feelings: both, too, have an outward physical expression.² But there is not in emotion, as in sensation, a localised corporeal affection—implying distinct organic seats or organs; and, whereas sensations are primary and simple feelings, emotions are secondary, fuller, more complex, and derived.

¹ These "feelings of a nobler nature" are with Hamilton *sentiments*, but are more properly denominatd *emotions*. Sentiment, as a word, is but a sorry substitute for Emotion. It has in English a well-marked *intellectual* signification (= thought, opinion), and so cannot, without the risk of confusion, be confined to a species of Feeling; and, besides, the adjective *sentimental*, owing to its vulgar associations, is ill suited to express in philosophy the fact designated by "emotional".

² This concomitance of the physical and the mental, in the case of emotion, is well expressed by the Latin "*com-motio*" (Classical as well as Scholastic).

Again, sensations implicate the intellect but slightly; the intellectual implication on the part of the emotions is considerable and often great. The two have also been discriminated with respect to their bearings on volition. It has been roundly maintained that "in themselves considered, emotions can scarcely be called springs of action. . . . Emotions in themselves, and by themselves, lead to quiescence and contemplation rather than activity." But, plainly, emotions (many of them) *are* very powerful springs of action¹; while many sensations, until they reach a particular pitch of intensity, are sedative. It may be granted that emotions like the æsthetic lead almost wholly to contemplation and quiescence; but what of love and the tender emotions generally? and what even of grief and fear, up to the point where they paralyse and overwhelm us? Then, again, is not sensation often sedative and soothing too? Witness (*e.g.*) the pleasure of the eye arising from a soft light, or the pleasure of the ear from certain kinds of sound. Volitionally considered, sensation and emotion are not to be discriminated; or, if we make a difference between them, it must be in a duly qualified, restricted form.

III. What now of special significations?

In the problem of the external world, Sensation has a wider and a narrower sense. In its wider sense (which is now generally discarded), it stands for Sensation proper *plus* Perception proper; this last being sometimes designated, for distinction's sake, "*external sensation*". In its narrower sense, which (after Reid) is the one commonly accepted, Sensation is used as the correlative of Perception. As thus employed, the one has reference to the outward or objective attitude in the process; the other is the subjective or inner: the one carries us out of ourselves and brings us into relation with extra-organic objects; the other does not. The former (the perception) is sometimes called "the cognitive or knowledge-giving element," and sometimes "the vehicle of information". But, obviously, neither form of expression is sufficiently restrictive. There is in sensation, even in its narrowest sense, an intellectual or cognitive element; and in the mere fact of *localising* sensations in the organism, there is a certain differentiation of external from internal; but the cognition implied in perception is knowledge of the outward or objective regarded as the extra-organic.

The relation between Sensation, thus considered, and Perception, has been formulated by Hamilton in his well-known law (Reid's *Works*, p. 880 a):—"That, above a certain point, the stronger the sensation, the weaker the perception; and the distincter the perception, the less obtrusive the sensation: in other words—though perception proper and sensation proper exist only as they co-exist, in the degree or intensity of their existence they are always found in an inverse ratio to each other". But this, as Mr Herbert Spencer has

¹ The word itself would seem to indicate this. *E-motio* (Scholastic but not Classical) = impulse *outwards*.

remarked (*Prin. of Psych.*, II., 246, 248), is "rather an adumbration of the truth than the truth itself". The correct position seems to be—"not that sensation and perception vary inversely, but that they exclude each other with degrees of stringency which vary inversely". And if so, then the fact ceases to be isolated, and becomes typical. Exclusion of this kind is not confined to Sensation and Perception, but extends also to all mental states in their relation one to another: it is very general, and the law expressive of it is in substance just the law of absorbed Attention—applicable alike to sensations, to perceptions, to engrossment in a train of thought, to imagination, &c. It is, perhaps, this that Ferrier (*Lects., &c.*, II., 40, 69, 70) means, when he enunciates the law of the inverse ratio as holding between Sensation and Consciousness; at all events, that law has no other true significance. Sensation, as here taken, covers a wide field (as will be seen from the following quotation), and Consciousness is the notion of personality—or, as Ferrier himself likes best to express it, the "self-reference"—that "in man generally, though by no means invariably, accompanies his sensations, passions, emotions, play of reason, or states of mind whatsoever". It is maintained, "that the degree of our consciousness or self-reference always exists in an inverse ratio to the degree of intensity of any of our sensations, passions, emotions, &c.; and that consciousness is never so effectually depressed, or, perhaps, we may say, never so totally obliterated within us, as when we are highly transported by the vividness of any sensation, or absorbed in the violence of any passion. While, on the other hand, returning consciousness, or increasing self-reference, has always the effect of deadening the sensation and suspending the passion, until at length, when it reaches its *ultimatum*, the sensation or passion becomes totally extinct."

Again, Sensation is sometimes put as the antithesis of Idea. This, in the hands of Malebranche and the Cartesians (not Descartes), is the distinction between sensation (*sentiment*) and perception, which we have just been considering; but, in the hands of others, it is used to denote a different fact. In *their* interpretation of it, Sensation is the present experience of the actual or real, as distinguished from the recollection of such actuality (Memory), and from the mental creation of a situation that has never been experienced at all (Constructive Imagination). Sometimes, also, the relation is expressed as that of Object and Subject: but to call Sensation the *object*, after having in sense-perception set it forth as *subjective*, is misleading in the extreme. A further complication arises when Sensation itself is distinguished into objective and subjective. An "objective sensation" is, in that case, one arising from a stimulus external to the sense-organ; a "subjective sensation" finds its origin in the changed condition of the organ itself.

A word still remains on Locke's famous antithesis of Sensation and Reflection. Neither term of this contrast is used with strict or philosophical precision. On the contrary, the latter, in order to give the desiderated meaning, must be confined to introspection or self-observer-

vation—to the knowledge of mind and mental processes that is gained by the psychological method of internal perception; and the former must be extended so as to include external perception and everything that gives us a knowledge of the extra-organic—information concerning the world without. It is obvious that Sensation here has a quite unjustifiable latitude; and, as for the other terms, *self-observation* is only one species of Reflection. The process implied in continuous attention directed towards “external material things” is often as much reflection as is “the notice which the mind takes of its own operations, and the manner of them; by reason whereof there come to be ideas of these operations in the understanding” (*Essay*, II. i., 4).

WILLIAM L. DAVIDSON.

VII.—CRITICAL NOTICES.

Kant and his English Critics. A Comparison of Critical and Empirical Philosophy. By JOHN WATSON, M.A., LL.D. Professor of Moral Philosophy in Queen's University, Kingston, Canada. Glasgow: Maclehose, 1881. Pp. xii., 402.

Professor Watson's work, in every way a valuable contribution to Kantian literature, has as its main end the comparison of the philosophical principles of the Critical system with those of the Empirical school, generally and with some justice described as specifically English. There can be no doubt that the opposition between these two methods of speculative inquiry is the cardinal feature of modern philosophic thought, and a critical comparison of the principles on which they severally proceed is unquestionably a work in season. So far as that comparison is carried out by Prof. Watson, the work is done well and thoroughly. He has stated with care and precision the outlines of the fundamental section of the Critical doctrine—the theory of cognition, has defended its main positions against certain objections raised partly by friends, partly by opponents of the system, and has indicated with much skill and thoughtfulness the aspects in which it is defective or erroneous. In connexion with the several problems to which the Critical theory of knowledge has been applied, such *e.g.*, as the relation between psychology and the transcendental method of analysing cognition, the significance of Monism as a speculative doctrine, the nature of the fundamental assumptions of scientific thought, the distinction between phenomenal and noumenal existence, he has subjected to close examination the most prominent attempts at solution that have been put forward by writers of the Empirical school. Thus in chapter iv. (pp. 92-137) Lewes's psychological theory is submitted to an exhaustive critical examination; in ch. ix. (pp. 260-288) Mr. Herbert

Spencer's views regarding the nature and origin of the first principles or highest generalisations of scientific thought are considered, and in ch. x. (pp. 289-329) the views of Kant and Mr. Spencer are compared and contrasted on the problem of the relativity of knowledge.

The work thus falls into two fairly well marked divisions. The first and larger is devoted to the exposition, with conjoined defence and criticism, of the Kantian doctrine of knowledge, the second contains the application of the Kantian theory to the criticism of the Empirical method. A few remarks may be permitted on some of the more important features of these sections of Prof. Watson's work.

The main end of Prof. Watson's work being criticism, not exposition, it has not formed part of his plan to give any historical introduction to the Kantian doctrine of knowledge. Although no objection can be raised on this ground to his method of procedure, there can be no question that many of the salient points of the Kantian theory can only be made quite intelligible by reference to the development of the theory in Kant's pre-critical writings. It is hardly possible to do justice to the main theorems of the *Kritik* without bringing into clear light the aspects in which the several philosophical problems presented themselves to Kant. Thus, to take but one example, the position of the Categories in the Kantian scheme of cognition, their precise nature and their relations, on the one hand, to intelligence and, on the other hand, to the materials of experience, can with difficulty be made quite intelligible unless the history of Kant's own philosophic development be taken into account. For, when that is done, we obtain a clue to certain ambiguities of statement that have perplexed expositors of the system; we are able to understand how it comes about that Kant describes the Categories as notions (*Begriffe*), that he assimilates them to the products of logical reflection, that he assumes for them a quite peculiar relation to the imaginary things-in-themselves, and that he finds himself involved in such serious difficulties when he has to define their function in the formation of experience. Throughout all the pre-critical writings, and especially in the well-known *Dissertation* of 1770, we find Kant holding firmly to the view that intelligence, *per se*, is the source of certain notions or pure concepts, and defining metaphysics generally as the analysis of these notions. Even in the *Dissertation*, generally but with little right regarded as the anticipation of the *Kritik*, these pure notions are viewed as standing in no immediate relation to experience. They do not, in these earlier writings, hold the position with reference to experience afterwards assigned to the Categories, but are regarded as standing quite apart from things of sense, phenomena, and as enabling intelligence to reach determinations of things-in-themselves, noumena. From this view of the pure notions, a view which might easily be shown to be nothing but a logical deduction from the individualist conception which Kant was unable entirely to disown, he never succeeds in freeing himself. The fundamental principle of the *Kritik* is indeed the means by which such a view is

to be overcome, but in the application of the principle Kant is constantly hampered by the consequences of his earlier doctrine, and in his mode of exposition, employs terms only intelligible by reference to it. A full commentary on the *Kritik*, written from the historical point of view, is still a *desideratum* and, so far as one can judge from the recently published portion of Vaihinger's elaborate work, it is not likely for some time to be supplied.

Prof. Watson, not entering upon any historical statement of Kant's doctrine, begins his exposition of the Kantian theory of knowledge with a statement of the cardinal features of the Transcendental method, pointing out with clearness and precision its relation to the principles of the opposed methods—Empiricism, as represented by Hume, and Intellectualism, as represented by Leibnitz. The defence of the Transcendental method as against certain objections or misconceptions is full and satisfactory; perhaps the elaborate discussion of such objections as those of Mr. A. J. Balfour, here considered, may be thought superfluous.

In the second chapter, after a statement of the main doctrines of the 'Æsthetic,' Prof. Watson examines the objections that have been raised to Kant's 'Refutation of Idealism'. The difficulties that have presented themselves in the endeavour to interpret correctly this portion of the Kantian system are due mainly to the ambiguities of the language in which it is stated, but in part at least to a certain incompleteness in Kant's view of the problem. Prof. Watson is perfectly successful in showing what it was that Kant intended to prove in the 'Refutation'—the essential correlativity, for intelligence, of real phenomena in space and subjective determination of inner or ideal life—and is therefore able to dismiss readily those objections which are based on the supposition that the things perceived are things-in-themselves. He is also, it appears to me, correct in the view taken of the ambiguous remarks in the *Prolegomena* relative to Idealism, but he has hardly indicated with sufficient fulness where it is that Kant's reasoning is defective and consequently where the source of these ambiguities is to be found. Kant assumes in the 'Refutation' what the preceding 'Deduction' had entitled him to assume, that object of cognition shall be taken to signify the complex product of sense-affection and intellectual function. He concerns himself only to show *what* it is that we mean by *reality* in an object of cognition, and this he finds in immediate data of sense-affection. The problem of external perception, therefore, which seemed so formidable when taken from the psychological point of view, appears to Kant exceedingly simple. External, *i.e.*, space-qualified, data of sense are original, not derivative. The difficulty for Kant did not lie in any doubt as to what the *real* object was, but as to the significance of the thought of object in general and as to the mode in which this thought is connected with the data of sense. He never succeeds in clearing up his theory on either of these points—the importance of which Fichte was the first to perceive. Accordingly, when Kant discusses the question of Idealism, it presents itself to him under various aspects and his expressions with regard to it are lax and ambiguous.

In chapters iii. and v. Prof. Watson continues his exposition, dealing with the Categories, the function of Productive Imagination, the nature of the Schema, and the system of Principles which is the outcome of the whole. The statement of the elements which enter into the Kantian notion of knowledge (pp. 82-3) is excellent and helpful, while the careful notice of the schema as "not a determination of time itself, but a universal determination of the manifold in relation to time," obviates many misconceptions into which less cautious expositors of Kant have fallen. In chap. vi. a full analysis is given of the proof which Kant has offered for his Principles of Judgment, and in the following chapter objections to these proofs are considered in detail. The interest centres mainly round the proof of the principle of Causality, to which Prof. Watson devotes several pages. After giving to these pages all the attention possible, I am not able to feel sure that I rightly apprehend Prof. Watson's reasoning, but, so far as I can understand it, he seems to me not to have seized what is essential in the Critical proof of this important doctrine. The term which he employs throughout, *viz.*, *sequences*, is so ambiguous that it casts a certain obscurity over the whole exposition. Prof. Watson surely does not imagine that with Kant it is the exercise of a subjective function of thought that determines invariable sequences of events in time. His opposition between arbitrary and invariable sequences would lead one to ascribe this error to him, and to suppose that he has been misled by what he thinks has misled Prof. Caird—the illustrations offered by Kant. These illustrations are mere helps, and do not enter into the proof of the principle at all. So long as we take into consideration the world of empirical phenomena, following one another in arbitrary or uniform fashion, and assume that Kant's problem is to determine how it is possible for an intelligence to which these are presented to distinguish uniform from arbitrary, we can never understand his doctrine. The law of causation as principle of judgment has nothing to do with this or that connexion of empirical events, but only with the form of possible experience of any events. No event or change, Kant desires to show, is possible object of knowledge, save for an intelligence which determines changes in time by reference to causal connexion of these changes. It is observation or experiment only that informs one whether *a*, or *b*, or *c* is the antecedent from which any given event *d* follows, and such connexions, according to Kant, are always for us contingent. To any one who has fairly considered the relation between the Principles of Judgment as determining and the principle of Reflective Judgment, it must be impossible any longer to be puzzled by the cumbrous and involved fashion in which Kant brings forward his doctrine under the 'Analogies'. As to Kant's distinction between "our perceptions as occurring in an arbitrary order and real sequences as occurring in a fixed or unchanging order," it rests partly on the fact that Kant never is able to free himself entirely from the prejudices of the psychological method, and is therefore inclined to look at the process of apprehension from without and describe it as con-

taining parts received in succession, and partly on the fact that Kant thinks it desirable to illustrate by an example the opposition between imaginary and real change. The difficulty remaining for his theory here as in the case of the 'Refutation of Idealism,' is that of applying the principle of causation to the successive determinations of our own existence in time. Kant has hardly considered whether or not this application is possible, though in his remarks on Intelligible and Empirical character he assumes it as undoubted; and he would have found it hard to show its possibility. It would have been well had Prof. Watson given some notice of this neglected element in the Kantian doctrine, the more so as it connects itself curiously with some of the theorems in the *Metaphysic of Nature*, of which a very adequate analysis is contained in chapter ix.

A brief notice of Kant's doctrine of Noumena, in chapter x., closes the expository portion of the volume. It is no doubt possible to isolate the positive side of the Critical theory of knowledge, and to consider, as is here done, only the 'Æsthetic' and 'Analytic,' but such isolation has its dangers. The doctrine of Noumena cannot be fairly understood without reference to the more metaphysical side of Kant's doctrine, and the whole function of Understanding appears in a new light when stated in relation to Reason as viewed by Kant. The doctrine of Reflective Judgment and of the notion of End in nature is really an integral portion of the theory of Knowledge, and a certain confusion must always result from considering separately one part of a very complex whole. The full significance even of the Critical theory of knowledge cannot be appreciated unless there be taken into account the relation of the thinking subject to the so-called supersensible realities which are indicated by the practical Ideas. Much of what Prof. Watson, in the two concluding chapters, rightly describes as imperfection or incompleteness in the Kantian doctrine of knowledge, is connected in the most intimate fashion with the peculiarities of the Kantian metaphysic, and the critical examination might have been made more general and more fruitful, had there been included a fuller notice of the metaphysical side of the system. The two chapters referred to appear to me the most valuable portion of Prof. Watson's work. They discuss in detail the more prominent difficulties in which Kant was involved through the influence of the individualist conception from which he had not succeeded in freeing himself. For, though the Kantian theory is in essence an attempt to overcome the abstract individualism of the preceding eighteenth century philosophy, although in it for the first time the notion of the individual is subjected to revision and criticism, yet Kant never succeeds in leaving entirely the individualist point of view. He still regards mind or intellect as the individual conscious subject, to which experience is, in part at least, given. To overcome the opposition between the cognitive subject and the cognisable world is therefore the problem at which he incessantly labours, and the several elements of his theory of knowledge are so many terms or *media* introduced in order to effect the desired union. Hence arise the special difficulties

or obscurities of the system, on some of which Prof. Watson has here commented with great skill and thoroughness. The distinctions between receptivity and spontaneity, between *a priori* and *a posteriori* truths, between *form* and *matter*, are some of the modes in which the fundamental difficulty presents itself, while an examination of the subjective processes through which the elements of cognition are realised in consciousness discloses a similar series of unsolved perplexities or inconsistencies. The separation of Sense and Understanding, the continuous tendency to regard each as furnishing a finished, definite, cognisable product, the endeavour to effect a junction by means of Imagination—these are points in the Kantian theory to which it is well to draw attention, and the discussion of them could hardly be carried out more thoroughly than has here been done by Prof. Watson.

One minor defect of his critical remarks may here be alluded to, mainly because it appears to a much greater extent in various recent works bearing on the Kantian system and written from what one may call the Hegelian point of view. There is apparent in such writings a tendency to employ extremely abstract and special terminology—terminology which has its significance only in reference to an underlying and presupposed system—and, further, to regard problems as adequately discussed or resolved when they have been reduced to the terms of the underlying system. Prof. Watson is by no means one of the greatest sinners in this respect, but his frequent employment of the expression "reflect" must cause bewilderment to the uninitiated reader. It is quite impossible to put a simple and natural interpretation upon such phrases as—"the objects we actually know are constituted for us in the reflection of the manifold of sense upon the forms of the mind" (p. 290); "the process by which the manifold of sense is reflected on the categories" (p. 292); "not a mere manifold, but a manifold reflected on a unity" (p. 358). The use of such phraseology is undoubtedly one of the greatest obstacles in the way of bringing the speculative philosophy that originated with Kant to bear in a living and practical fashion on the work of philosophy in this country.

Upon the critical analysis of the Empirical doctrines which Mr. Watson has given in chs. iv. and ix., it does not seem necessary to comment at length. The examination of Lewes's theory of knowledge is perfectly successful in pointing out the ambiguities and contradictions in that prolific writer's later works, but it is barely complete enough on its constructive side. Prof. Watson rightly dismisses the theory of the two-fold aspects, which has played so important a part in Neo-Kantian literature. As he well puts it—"The contrasted aspects, in short, are but logical abstractions, which are not in themselves objects of knowledge at all, but merely elements which, when regarded as in essential relation to each other and to self-conscious intelligence, combine in the concrete life of knowable existence". It might have been desirable, however, to bring forward in even more general fashion the fundamental opposition between the

two methods of contemplating speculative problems which may be called respectively the Transcendental and the Empirical. Something is done in this direction in the chapter dealing with Mr. Spencer's treatment of the fundamental laws of physical nature, but a further discussion might have been helpful, not merely for purposes of criticism, but as bringing into due prominence the relation between the transcendental theory of knowledge and the subordinate philosophic disciplines, such as psychology. What is specially requisite at the present time is a full and comprehensive discussion of the relation between the pure theory of knowledge as the analysis of self-consciousness and the results of the several subordinate sciences which deal with the world of experience. Prof. Watson has given a valuable contribution to this discussion; but the subject is one demanding more expanded treatment than his limits have permitted, and requiring constructive rather than critical work.

R. ADAMSON.

The Creed of Science, Religious, Moral and Social. By WILLIAM GRAHAM, M.A., author of "Idealism: An Essay, Metaphysical and Critical". London: Kegan Paul, 1881. Pp. 412.

The object of the present work is to furnish a critical estimate of what may be taken to be the generally accepted creed of men of science, together with an answer to the question how far certain transcendental beliefs are affected by the results of recent physical inquiries. There are propositions indeed respecting which Science becomingly preserves a serene silence, a silence, however, not seldom correctly construed as polite denial, it is a leading aim of the writer of this book to distinguish between the cases where lack of positive evidence may rightly be held to justify a negative attitude, and those other instances where "the conclusion of the whole matter" amounts simply to this—where is no organ there can be no vision. It is true Science claims large rights both of affirmation and of denial, indeed, to judge rather from practice than theory, without respect of time, place, or subject; for not even yet, with all its balanced intelligence, does the world appear to have settled the old question, whether Faith should precede Knowledge, or Knowledge take precedence over Faith. On the one hand, it is assumed almost as an axiom that assent is valueless in the absence of evidence; on the other, the exercise of "believing where we cannot prove" is claimed as the supreme wisdom. We are reminded of this venerable controversy in perusing Mr. Graham's volume, for very much of the argument hinges upon it. Thus we are not at all clear what is our author's criterion of speculative truth. Sometimes it seems the "instincts of the human heart"; at other times, the unthinkablebleness of the contradictory; again, some inexplicable necessity, a "must believe" or "we are compelled to interpret," and even a majority vote of illustrious thinkers. A more superficial defect is the failure to observe a distinctly logical order in the treatment of the topics. Book I. discusses

the Creed of Science, Religious and Moral; Book II. the Gospel and the Social Creed of Science; and Book III. the Future of Religion and Morals: a tolerably clear division; but in point of fact the same ground is constantly being re-traversed, and to grasp the full force of the argument, portions of separate chapters must be carefully collated. Passing to the matter and general tone of the work, there is nothing but praise fairly due. Such free criticisms of the philosophy of science are rarely made with as full comprehension of the doctrines criticised and so evident a desire to be thoroughly impartial. Mr. Graham always makes the best case he can for the positive doctrines, and even after delivering himself of what he deems their needed supplement and correction, turns back once and again to interpose an assumed reply on the part of his imaginary colloquutor. It is evidently the author's desire to gain no merely verbal victory, but really to worm out the very truth. Books like this are certainly needed at the present stage of speculation, controversial works written, as one may say, from within the scientific camp. Nothing can be plainer than these words. "Science is the true revelation to men—the only revelation that men have ever received or can receive." "The truths of science will save you; in the sequel they will save the world; they alone can do so. They will save your soul in the only sense in which it can be saved. . . ." After such unstinted laudation, the reader will perhaps wonder how it happens that the writer is so discontented with this excellent guide. We shall presently see.

And perhaps it may be as well at once to understand our author's attitude to Positive Science. Mr. Graham is willing to receive at the hands of men of science all that they show to be the fruit of first-hand converse with Nature. Whether the theme be the genesis of physical worlds, the elaboration of living forms, the origin of man, the evolution of moral order—he does not seek to evade the conclusions which a close adherence to the rules of evidence forces upon the truth-loving mind; but he finds, on closely scrutinising the facts, that they are either largely interwoven with theories or that their discoverers regard them as self-explanatory. Either the line between Fact and Speculation is blurred, or Fact is set up as self-sufficing. Now, Mr. Graham very properly requires that there should be no mistake about what we *must* and what we *may* believe. We have seen him declare that there is no other revelation but Science, and this assertion covers the refusal to accept the deliverances of certain remarkable men, for whom special organs of intuition or knowledge have been claimed, as if they were oracles from heaven. The secrets of Nature, of the knowable universe, are only to be read by prolonged interrogation, but by the same method of patient observation and experiment are legible by all men. And yet, though Science can teach us so much, the whole region of belief is not accessible to her. Whatever be the way by which we come by it, there is much else to which Mr. Graham thinks the human mind insists upon holding fast, and which, whatever the character of our phenomenal researches, it will never surrender. How and why is

this? The answer is rather hinted at than plainly enounced in the book before us. It is, we presume, that "deep-seated in our mystic frame" there is an element identical in essence with that Ineffable Existence in which "we live and move and have our being". If Science be only crust-knowledge this is so, and that Science is crust-knowledge we take to be our author's contention. "She (Science) has long since handed over the question of the *why* of phenomena to metaphysics, reserving to herself the question of the *how*, the question of fact." To speak scholastically, Truth is bounded *materially* by positive experience, by the presentations of the Changeable, but *formally* it is enlarged to the dimensions of Infinite and Perfect Reality. Our field of cognition is ever a sphere, our own position being by turns at the centre and the circumference: at the centre because the Existent must become Object to us, is over against, remote from us; at the circumference when we become objects to other intelligences. There is no Macrocosm without a Microcosm, only chaos unless we have the principle of Order in our own breasts. And unless we are at the heart of things, what right have we to challenge the sufficiency of Science? Mr. Graham finds a philosophy based on the current theories of Physics to be a revised version of the Democritean materialism. It leaves us with no Deity but Chance, "a universe drifting nowhither". But "Chance" is no explanation, it is the absence of explanation. The metaphysical appetite will also be satisfied, and supplies the idea of Purpose. Here is the first great gap in the Philosophy of Evolution according to our author,—it has no room in its system for Purpose. But how to get the notion of Purpose without drawing upon positive experience, without in fact abstracting from a select class of human actions? The difficulty is to steer clear between that Scylla of pure haphazard and the Charybdis of transferring an attribute of finite sentient beings to the vast cosmos, to the Power indeed beneath all appearance.

Now I am prepared to go one mile with Mr. Graham, but I cannot see my way to venturing twain. The "conception of a grand Reality," so ably contended for by him, the God of Spinoza and of all poets and philosophers who have caught his spirit, the Absolute which refuses to be circumscribed either by a Materialism abstracted from presentations of sense or an Idealism abstracted from representations of intelligence, is to me, as to him, a *datum* making all experience possible; but it is a graver matter than I think Mr. Graham realises to apply the attribute purposeful to this All-one, and graver still to describe the supposed purpose as good. Mr. Graham does not seem to me to have sufficiently reflected that Purpose by itself is a barren term. What is the content of this Purpose? In what sense can it be said the Impersonal God he recognises has a purpose? To stop short with such proximate ends as "a better world on the earth . . . a higher and also a happier one," is scarcely to furnish a half-answer to the question. It doubtless is a sign of prudence in a thinker to attempt to pry no further, but is no mark of speculative wisdom. Species appear and vanish, worlds come and go, and yet

"the most important of all (divine attributes), *purpose*" remains unrealised. What is this Purpose which urges myriads of beings into consciousness, and then recalls them into the silence of the unconscious after a few years of more or less painful struggle? Deeming ourselves to be now in the world's nonage, perhaps the "higher and happier" Future of the period of maturity may seem a predestined goal; but what outlook will there be for the "crowning race" who peer into the coming night of time, when the waves of dissolution begin to be faintly heard breaking upon the terrestrial shores?

But our author's faith is large; it not only includes the hope of an Earthly Paradise, but also trust in "the good purpose of the universe". Now as Mr. Graham does not reveal to us the purpose of the universe at all, I confess my inability to gauge the appropriateness of epithets like those of good or evil. His real meaning, however, is something less than this. He merely intends to express his conviction that in the sphere of human life the social virtues are gaining ground on the selfish propensities, and that measured by a hedonistic standard it was well this earth of ours was sped on its evolutionary journey. In other words he is a declared Optimist, even to the extent of the somewhat dogmatical assertion: "The direct contrary of the pessimist proposition may be held; life for most men is not an evil; up to the day of death, if asked, they would so reply; and there is no going beyond the individual's testimony in his own case". This somewhat confident statement is followed up by the remark: "His (*i.e.* the individual's) testimony to his own experience of the worth of life is more to be relied upon than any system of philosophy which at best applies to average cases". Surely the optimistic position is not so uncertain as this, that it has to rely upon personal consciousness in preference to a system of philosophy which *at best applies to average cases*. On the same showing, then, we should admit the *liberum arbitrium indifferencie*, a matter on which Mr. Graham is quite content to forsake the solid ground of private testimony. But Mr. Graham seems to labour under the strange delusion that the pessimist is committed to the belief that feeling is always painful (or indifferent), that in fact he does not know the meaning of pleasure at all; for he indulges in an eloquent rhapsody to show that we may and do have hours of perfect felicity, "moments when we have seemed to hold happiness in our hands". But who doubts that? who doubts the artist's rapture at a beautiful sunset, or the quiet joy in the attainment of truth? And notwithstanding that he furnishes some well-drawn pictures of the shady side of life, it is clear that Mr. Graham does not appreciate the strength of the pessimistic position. His view of life, as indeed his whole philosophy, seems to me far too much tinged by his own poetic spirit; he cannot and will not submit to the stern pressure of Fact. Things *must* be better than they seem, there *must* be a glorious time coming; if only men will be patient, if they will but resign themselves, and so on, all will be exceedingly well. But let us keep apart our aspirations and our positive observations. Let us first of all employ the despised method of averages, and then

inquire what is the worth of our ideals. Now there is one extremely significant fact, I think, in this controversy of Optimism and Pessimism, *viz.*, the very strong tendency of mankind to place its Paradise or its Golden Age in any other age of the world than its own. Either we have left behind us the Happy Valley, or there is an Island of the Blest towards which we are sailing, and which we shall surely reach in due time. That "our America is here or nowhere" is the grand lesson of life which only the ripe sage really learns, learns indeed usually when its mastery has become valueless. Now, if the perennial expectation, the perception that "man never is but always to be blest," is a state of mind so agreeable as to outweigh the pains and troubles of the actual life, a prospective Optimist may be admitted to have the best of it; or if we are to shut our eyes to the agonies which have paved the way for our felicity, if we are to ignore the fact that hitherto in proportion to man's sympathy has been man's sorrow, then again Pessimism may be considered to be disposed of. But if, keeping a strict account, we reckon up the total cost of our possessions—the laborious initiative, the ever-renewed discontent, the Sisyphus labour of philanthropists, and the unutterable pangs which ignorance and deliberate cruelty have evoked—and can still find the pleasure reaped an ample justification; a case will be made out for "the good purpose of the universe" better than I confess it seems to me existing data warrant.

In Book I. our author discusses the various scientific cosmogonies, the origin and evolution of Man and his place in nature. He deems Natural Selection a better-proved hypothesis in Biology than the Nebular Hypothesis in Astronomy, only quarrelling with the Darwinian evolutionists for regarding their positive as a final philosophy. He rebukes the crude Materialism of Prof. Tyndall which professes to find in the solar fires all the wit and wisdom of the yet unborn earth, and thinks the transmission by inheritance of favourable accidental variations in the case of the more recondite marvels of animal and moral life "too futile an explanation to be seriously believed or entertained". It is the unlucky word "accidental" in the *Origin of Species* that Mr. Graham fastens upon; and, taking it *au sérieux*, he devotes page upon page to expressing his conviction that with only "the two shadowy and impalpable agents" "Chance and unimaginable years," we should never have been able to get our eyes, much less our eye-sight. And yet "in such ways as natural selection indicates, Nature *must* have travelled". Why then be distrustful of Nature's self-sufficiency? Mr. Graham will not have an Anthro-po-Theism at any price, and yet he is evidently alarmed lest we should burn our *Bridgewater Treatises*. We exhort him most seriously to consider the stability of his foundations. If he desires to retain Spinoza's Substance, he must refrain with Spinoza from the most attenuated teleology; or if he insists strenuously on "a rational purpose," let him see to it that he do not glide back into the anthropomorphic theologies from which he thinks the world well delivered. It seems a harmless thing to grant just a little purpose

and a little planning in the mighty procession of events; but the thinnest end admitted of the anthropomorphic wedge will split up Mr. Graham's Pantheistic Monism, and strew the world again with all the forms of a gross or refined idolatry. "Chance as an explanation—and if Design be denied Chance must be offered as the explanation—is," he says, "a word expressing nothing, a word which, under pretence of explanation, affirms nothing whatever." But who is it that offers "Chance" as an explanation; who in fact could offer "a word expressing nothing"? I must also demur to Mr. Graham's parenthesis—"and if design be denied, chance must be offered as the explanation". Chance can in no case be offered because it is insignificant. Those who are Monists in fact not in name, who really admit a Substance which is neither Mind nor Matter, and have a fixed aversion to a word so clearly connoting a mental mode as Design, do not wish to offer any explanation of the world in Mr. Graham's sense of explanation at all. They do not think that anything is made clearer by adducing a causality which they only know in a limited class of animal actions, and which by no stretch of imagination they can conceive as bringing about the effects whose origin it is desired to trace. "If we must elect between the two agencies, Chance and Design, the latter must be nearer the truth. Design we know already in our own case to be a true shaping power, while Chance effects nothing but evil in the long run." A strange agency that which is symbolised by "a word expressing nothing," and which yet possesses the power of effecting nothing but evil! Surely, instead of affirming nothing whatever, Chance must affirm a good deal if it is productive of such serious consequences. These conflicting statements we confess somewhat perplex us. Which are we to take as Mr. Graham's deliberate opinion—that there is in truth no option for us, that we must have Design or nothing at all? or adopt in its stead a real although an evil principle? His polemic against Chance is so determined that we are almost tempted to credit him with the latter. Chance is Ahriman, Design or Purpose is Ormuzd. Darwin and the men of science revere the former, but all people of right minds will present their adoration to the good Spirit.

I regret to find myself at so great a distance from Mr. Graham on a point so fundamental, but I now come to a subject where I find the gulf between us even wider, where indeed no hope of compromise is possible. The subject is the Nature of Man. Here, as elsewhere, Mr. Graham admits so much that Science offers for acceptance, that his efforts to save the remnants of older speculations seem almost wilful perversity. He will have nothing to do with the metaphysician's soul-substance, or the Kantian noumenal Ego. Man is the highest of the animals, having a larger measure, it is true, of the Purposive Power breathing through him than the brutes, but still affiliated to them by lineal descent, a link in the endless chain of Nature. And yet for all that, though his faculties be not different in kind but only in degree from theirs, though the marvel of consciousness be the concomitant of a material brain, though mind is so

dependent on matter that bodily disorder or a deteriorated circulation will ruin the moral nature, this superior animal is still so unique that for each individual there is reserved innumerable transmigrations, conscious or unconscious, in this or other worlds. "Science has not proved, nor can she prove, that a conscious being may not hereafter emerge somewhere, in which or through which I may awaken again into being. . . . There may have been past existences without memory; there may be a future existence without memory, just as my present feeling of conscious existence is independent of memory. . . . None can tell what makes it [self-consciousness], how I have it, why it did not associate itself with another rather than me, why it did not become the conscious covering to another ego as its real core rather than mine,—why, in a word, to put it in the extremest form, it was not another being rather than I, which was born when I was born, and which slowly awoke into consciousness instead of me; and none can pretend for a moment to affirm that the same strange mystery of awaking from unconsciousness into conscious being, which has already once happened in my case, may not happen once again." And this possibility is strengthened by the Buddhist alarms about endless re-incarnation, by the hopes and fears of great poets, by the *Critique of Practical Reason* of Immanuel Kant, so much so indeed that Mr. Graham can calmly conclude: "Another existence, then, is possible, likely, certain; nay, more than one such". I do not know how other readers may be affected, but the feeling experienced by myself is one of sheer amazement. Mr. Graham is welcome to the dreams of the imaginative East, to the comfort derivable from Hamlet's famous monologue, and Goethe's personal confidence—these peculiarly subjective "aids to reflection" cannot detain us; but the *argumentum ad ignorantiam* which constitutes the appeal to the reason does "give us pause". Because I do not know how I am I, because self-consciousness has non-conscious antecedents making apparently an irrefragable chain of existence—therefore we are nearer the truth with the great hope than without it. Common sense says—what is Immortality without memory? Our author answers, well your Ego is not somebody else's Ego, and even though you re-emerge as a stock or a stone ("unconscious existence is also possible, as of the stone or the plant, and also, what is of much greater importance, unconscious existence of a great and grand order"), the particular stock or stone would not be some other stock or stone. It seems to him something unfathomably mysterious that he should not be somebody else. But what is the "I" that is favoured with such strange awe? Surely not the flexure of body and limb, the expression of face and feature, which differentiates human beings to vulgar apprehension; not the dexterities, disposition, bent of character, chiefly owed to my paternal and maternal ancestors, with a slight modification due to special educational influences. But let this spiritual set, these tricks of body and mind be eliminated, and what remains as the content of that "I" about whose fate the mystic is so concerned? What is there in the recognition of this barren unity of consciousness to answer "the

eternal and terrible cry of the human heart"—that cry, which it turns out is after all the provocation of this strange argument: "For we touch here at the primal and true source of the desire for another life, and of all the arguments in favour of it"? But a future without memory of the past (memory is frankly surrendered by our author), with none of the old marks of resemblance to the foregone personality, with an outward manifestation wholly alien to that by which it was perceived in this sublunary sphere, is hardly a future to repay Mr. Graham's eloquent pleading, and would surely not be valued by his large-hearted poets. Is it necessary to point out to a man of Mr. Graham's intelligence that the fact of self-consciousness can have no bearing upon this question of immortality, that the Ego which it testifies to is not even the thinnest ghost of an Ego, but a mere logical symbol, shapeless and vacant? But then there is the demonstration of the famous Kant! It is to be hoped we are not approaching an age of Neo-Scholasticism when this great name will be employed to enforce submission in philosophy as that of Aristotle in the Middle Ages, a pendant to the authority of the Fathers in the Christian Church; but on this particular subject it is fortunate that the antidote has been supplied along with the bane. Kant's Practical is so glaringly at variance with his Theoretical Reason, that respect for the thinker may best be shown by treating the two *Critiques* as unrelated products of his genius. A two-fold distrust hangs over the *Practical Reason*. It endeavours to legitimatise Ideas which the author elsewhere ingenuously confesses no logic would ever constrain him to abandon, and it surreptitiously employs conceptions whose extra-phenomenal use had been already proscribed. Is Mr. Graham prepared to go the road that Kant went? Is he prepared to hypostatise a bare logical subject? Will he quantify the spaceless and timeless realm of Noumena? And finally, which will he renounce—his Spinozistic Monism, or his Leibnitzian Pluralism? One or the other must go by the board; but even then the human heart will hardly receive the satisfaction it craves.

Book II. is devoted to a consideration of the drift of current opinion on social questions, and of the disinclination to accept the logic of Science on the part of the uninstructed many. The invaluable gain of a strenuous competition is here pointed out, and at the same time a patient hearing is granted to the statements of grievances of the less fortunate. The teaching of these chapters is for the most part admirable. The over-conservative attitude of Sociologists, whose reliance for the uplifting of the masses is on the infinitely slow progress of general forces to the disregard of the initiation of special enthusiasm, is deprecated; and on the other hand, the impatience of the Socialist who favours instant legislation as a cure for all ills is no less rebuked. Mr. Graham shows himself a far-seeing and judicious counsellor when, following in the steps of Mill and others, he advocates an improvement of the present system of individualism and competition, a more genuine trial of a really free industrial régime in preference to any arbitrary interference with present economic forces.

He seems to have but a dim faith in co-operative production ; but co-operative distribution has not yet been pushed to the utmost, and it is hard to say what capacities for combination will be developed by the various efforts at union which are now being made in so many directions ; the ever-increasing number of societies, councils, committees offering a training which will have its due effect in the industrial experiments of no distant future.

Lastly we come to our author's deliverances on Ethics and his partial indictment of the Experience Morality. On this subject he has two chapters closing the book entitled respectively "Objections to the Evolution Ethics" and "Conflict and Partial Conciliation between the New and Old Ethics," besides a few pages in the Introduction. From these we gather that Mr. Graham is discontented with all former systems and also with recent attempts to found a scientific Ethics. He seems to think that just as Religion is endangered by ignoring a Cosmic Purpose, so Virtue is jeopardised by resting content with the observed causes and effects of human actions, and that unless certain premisses be borrowed from Intuitionism the world will relapse into selfishness. It is not altogether clear how many of the objections urged to the Experiential Ethics from the side of Transcendentalism are accepted by Mr. Graham, but I think I am right in concluding that he is considerably affected by many of the difficulties raised by theological and philosophical alarmists. Let us see what these objections are. They seem to amount to this. An Ethics which traces the slow rise of Conscience, which in fact resolves the inspiration of duty into inherited tendency, really dethrones the Moral Law from its commanding authority, and allows allegiance to be lightly renounced by those who do not choose to be bound by the habits of their ancestors. Again, if virtue has been engendered by the pressure of social necessities, having no other warrant than social sanction, which is in effect to declare that might makes right, the door is opened for the equally valid principle that what man has made man can destroy. And so the Pleasurable coming to be the last word of a scientific Ethics will induce an era of social degeneracy, and the modern civilised world will tend to dissolution like the old Roman Empire, to be regenerated by the Goths of the proletariat who have not weakened their moral fibre by speculating on the origin of moral distinctions. Mr. Graham is careful to tell us that the alarm is exaggerated, and believes there is a misunderstanding at the bottom of it in the confounding of the *must* due to the social environment, and the *ought* of ideality. Man has shaped out the law of his conduct by struggle; well and good. To trace the history of the moral sentiments is an interesting study for the psychologist and the sociological student, but it is needless, if not dangerous, knowledge for the common man. "Let him accept the fact of its sacredness, as given in the feelings, in all faith." It may be quite true that the welfare of the tribe was the first moving-spring of duty, but the good of society is too large an object now, and the simple and more practical rule runs: "Veracity, justice and benevolence are now to be pursued for their own sakes".

But although the prospect seems at first sight so gloomy, though "there is real and just cause of alarm for the future of men," as we near the close of the volume we find the mists disperse and are comforted by the assurance that—"Virtue will not be destroyed. Morality, as well as religion, will remain. It will remain as an eternal necessity of our social nature and of our condition in the world." And this because: "the doctrine of heredity is on the side of morality". Yet the *Data of Ethics* must not be implicitly trusted, for as regards "the utilitarianism of Spencer," "there are the most serious questions raised by it; nay, the most serious and sinister of all questions—whether Virtue has any reality beyond Convention—is once more irresistibly raised by it; and the answer to the question from the evolution point of view is not quite satisfactory". Here, as elsewhere throughout his work, Mr. Graham seems to have a fondness for raising spectres in order apparently to have the satisfaction of laying them, allowing them, however, to show themselves again from time to time, so that the simple-minded man longing for peace is kept in a perpetual state of tremor, and does not exactly know what to make of it. In fact, the impression conveyed is that our author is one of that not rare class at the present day whose love of truth is too developed to let them close their eyes to the light of Science, but yet whose memory of faded glories is so strong that they are only half inclined to trust it to the end. His Transcendentalism and his Experientialism are not harmonised; they are simply juxtaposed, and he slips from the critical to the dogmatic vein almost without knowing it. It is well to see what we have to surrender if we are to be faithful followers of the new methods, but no good purpose is served by trying to put a patch here and there on our worn-out garments. Transcendentalism has an important function in providing an ontologic base for our phenomenal beliefs, but it is simply mischievous when it intrudes into the domain of positive knowledge. We are reminded of this most forcibly in the present instance. What is meant by the question "whether Virtue has any reality beyond Convention"? Has anyone ever contended that men make virtues by a sort of parliamentary vote? Even the terrible Hobbes looked upon the moral law as a practical necessity; and surely no one in these days of historical inquiry is likely to antedate the age of deliberate legislation, or even to imagine that the rule of conduct was shaped in the student's cell. Well then, if we are indebted to social needs for all the codes of Duty this world has ever possessed, why doubt that the same causes will be sufficient for the future? Why attempt to make the futile division between the Divine and the Human, the *voces populi et Dei*, which has given such an artificial air to some of the best thinking of the past? For as little as there can be a private Ethics, so little can there be a conflict between the Ethics of Utility and the Categorical Imperative. The Ideals of Truth, Justice, Charity, reduced to the concrete, are reals which the social spirit inevitably does homage to, although with ever plainer expression, according as the various members of the social system attain a more

intimate union. The error is, and we think Mr. Graham is not free from it, in laying an exaggerated stress upon the "individual," as if the individual were truly independent. The unreality and the inflexibility of the Intuitional Ethics, with its unlimited accountability and Absolute Morality, are the result of that overstrained conception of individuality which fails to discern the seat of Human Unity in the Body Politic. No wonder that if the transient Ego is exalted to this sublime eminence a strain is put upon his powers too great for him to bear. Morality is safe, then, simply because Morality means the voice of the Common Nature; it is a witness to an underlying community which cannot be dissolved before Humanity itself perishes. And instead of reference to the origin of moral ideas weakening this common feeling, it is a good aid to its realisation; for nothing is plainer, from what is now known of barbarous tribes, than that a common faith and practice is as old as private fancy and self-seeking, that it is as reasonable to imagine a *régime* of Egoism as to expect a suspension of the law of gravitation. The *Data of Ethics* will strengthen the sense of obligation which individualistic Intuitionism would have weakened long ago if speculation could have effected it.

A word before I close as to the relation of Mr. Graham to contemporary thought. In reading his book I am constantly reminded of Dr. Eduard von Hartmann. The stress laid on Purpose is a feature of the latter's philosophy as important as his revised Pessimism. The difference is, however, that von Hartmann's Teleology is a Cosmic Teleology, whereas Mr. Graham with an Englishman's modesty fights shy of finality, and thinks he has done enough for the salvation of an unspiritual Science when he indulges in generalities which seem like an echo of Mr. Arnold's strain "the Power that makes for righteousness". I hold von Hartmann to be here not only the bolder but the deeper thinker. Mr. Graham, it is true, is not a convert to Pessimism, but he is sufficiently impressed by it to rest its final rejection on its practical danger rather than its theoretical inconclusiveness. "The pessimism of the philosophers in any case is not a true gospel. It does not contain the true word of life for man to-day in Europe; and even if it were wholly true, it would be the kind of truth which it does not profit to insist upon. Unless with the diagnosis of the disease there is also the prescription supplied, as by Buddha, there is no good end served by preaching pessimism." Now, nobody wants to "preach" pessimism, and if anybody tried to do so to-day in Europe, he would certainly obtain a poor congregation; but I must protest against the suggestion that the teaching of philosophy should accommodate itself to the supposed cravings of the age, and also that the theorist is bound to be practical likewise. But I am astonished at the remark that the pessimist's prescription must be the asceticism of Buddha. A remedy which would only have the effect of removing the most clear-sighted from their labour of alleviating suffering, and so permit a more prolonged agony to the deluded masses, hardly recommends itself as a measure of real philanthropy. The supposed

conflict between the Utilitarianism of Mill and the Ethics of Spencer also reminds one of the contrast between Social-Eudaemonism and Progress enlarged upon by the Berlin thinker, but the latter would hardly say that there is "opposition wide as the poles between the new and the old utilitarianism". If "the happiness of the species," qualifying happiness by "attainable," be the aim of the old utilitarianism, then there is no conflict between the Ethics of Utility and the Ethics of Progress. The happiness of the aggregate of contemporary individuals no doubt is an aim directly in conflict with a principle which requires frequent disregard of seeming philanthropy, but if the well-being of an Organism ever changing in its parts be the aim, then it may be perfectly true that the "service of Humanity" and the "law of struggle" are one. The antagonism belongs to a different speculative basis, no other than the despised Pessimism, according to which Progress is a higher end than Human Happiness; and the circumstance that Mr. Graham does find the antagonism so great, and yet is so loath to abandon the Evolution-principle, is of good augury for his reconsideration of the complacent assumption that Science is and *must be* optimistic.

W. C. COUPLAND.

Symbolic Logic. By JOHN VENN, M.A., Fellow and Lecturer in the Moral Sciences, Gonville and Caius College, Cambridge. London: Macmillan, 1881. Pp. xl. 446.

This is not the exposition of a new system or a text-book of an old one; it is an essay on the conditions of any symbolical system of class-term logic, with especial reference to Boole. The essentials of Boole's work (Probability apart) might very well be learnt from it, but the chief end is never the mere unfolding of a method but always the critical examination of its relation to its principles. The historical element, though subordinate, is a remarkable feature. Probably Mr. Jevons revealed to most persons interested that Boole had one great precursor;¹ but Mr. Venn finds that starting from Leibnitz and culminating in Lambert there was in the last century a sort of symbolic school.

Mr. Venn does not formally define his subject. It is easily distinguished from the old logic by using an arbitrary notation for form as well as matter, that is for the relations between terms as well as for the terms (pp. 32 ff.). But I do not know that it can be distinguished from such systems as De Morgan's except by saying that it must lend itself well to trains of reasoning and enable us to find the relation of any term to any selection of other terms. On the other hand it deals with no relations but those of belonging to the same or different classes, with whatever extensions of interpretation the laws of combination among its symbols will allow. All depends on these laws, except that the internal conditions on which they them-

¹ *Principles of Science*, Preface to the Second Edition, pp. x-xiii.

selves depend allow a little external choice as to their precise form. Hence controversy: chiefly as follows.

Boole showed that in logic $xx = x$, but he wished his formulas to be true of 1 as well as of 0 in the usual sense of these, and left it to Mr. Jevons, who ignores 1, to improve on a hint of De Morgan's and show that we might further with equal accuracy take $x + x = x$, which answers to the unexclusive use of *or*, thereby introducing into logic a duality like those of modern geometry. Mr. Venn follows Boole in the exclusive interpretation,¹ chiefly for the speculative advantage of keeping as much as possible of the analogy with mathematics generally. He is doubtless right in maintaining (p. 385) that the speculative point of view is the important one, on the ground that the solution of problems is not useful directly; but when we are comparing general methods, practical efficiency and rapidity are a strong presumption of an appropriate and, from a speculative point of view, instructive procedure. From the same point of view, to have furnished ground for the relation of duality seems almost decisive in favour of unexclusion. For some time indeed it was only matter of faith that a method as complete as Boole's could be constructed with $x + x = x$. But Schröder's *Operationskreis* nearly superseded faith by sight in 1877; for though his processes might sometimes perhaps be more elegant than they are, I cannot admit he has failed in adapting Boole's formulas. It is not in itself damaging to say, as Mr. Venn does (p. 386), that his use of them obliges him to insert a correction, when the "correction" can be applied as regularly and consistently as Boole's own $xx = x$. To say that they are no longer the same appears to me to reduce itself to an excessive compliment to Schröder's originality.² At the same time I allow that the unexclusivists have exaggerated their case. Mr. Jevons claims for $x + x = x$ a sort of legitimacy I do not understand, and his treatment of the connected questions is hard to defend from Mr. Venn's criticism (pp. xxviii., 39). Schröder too seems to argue that it is arbitrary to treat it differently from $xx = x$. But ordinary thought knows nothing of dual correspondence. We make a complex term more intelligible by expressing it as an aggregate of compounds, and less so by expressing it as a compound of aggregates. So it is with sums and products in arithmetic, and this agreement between arithmetic and the logic of speech is a psychological strong point of the exclusive system. But psychology goes for nothing in a symbolic method.

There is a choice again as to the copula. Shall it mark coex-

¹ Ch. ii. pp. 39-47, 51-54, 59-63; ch. xix., pp. 380-389.

² Subtraction he seems to me to place relatively where Mr. Venn places division; and in criticising him on this point (p. 387) I think Mr. Venn has applied, by an oversight, to his logic what belongs to his comparison between logic and arithmetic. Mr. C. S. Peirce had already given a formally complete account of the inverse operations, in the *Proc. of the Amer. Acad. of Arts and Sc.*, vii. 252-4 (1867).

tensiveness or inclusion? Shall we say that $z = x + \partial xy$ or that z includes x and is included in $x + \bar{x}y$? Mr. Venn follows Boole and my prejudices are in that direction; but he hardly discusses the point (p. 376 ff), and I am not prepared to do so. Indeed I suspect experience is inadequate as yet.

In both questions it seems to me a mistake from which Mr. Venn is not quite free to go a step out of our way to secure harmony with the mathematics of quantity. These things take care of themselves. No one will ever devise a logic of classes which will not be closely analogous to the older algebras. As to Boole's, although the charge that it is mathematics rather than logic was virtually refuted in advance by the directness and elegance of its interpretations, an appearance of justification was kept up by the doctrine that its processes were less interpretable than its results. This, though not without countenance from Boole himself, has been refuted, perhaps, by Mr. Macfarlane and finally, I hope, exploded by Mr. Venn (chs. iii., ix).

By the equational procedure, and therefore virtually by the other, any data (so far as they lead to universal propositions) are made to deny collectively a part of the universe of discourse, and therefore severally every part of this part, and in these denials the import of universal propositions is taken to reside (p. 141). It might have been thought that Mr. Jevons had exhausted the significance of this, but Mr. Venn's readers will find that it is not so. Its most conspicuous result in his hands is a diagrammatic representation of propositions¹ by drawing a closed figure for every elementary symbol, so that the boundary of each cuts in two every compartment made by the intersection of the rest, and shading out the compartment answering to every denial. This is a great help and, by the powerful effect it will have on beginners, it may be expected to give a serious advantage to what Mr. Venn calls the compartmental view of logic, as distinguished from the old predicative view and from the view implicit in Euler's diagrams (ch. i). A less conspicuous though more obvious effect of the reduction of universal propositions to the negative form is the necessity of explanations touching their existential import if any (ch. vi., vii., xvi., and elsewhere). It is plain that denials of existence cannot simply affirm the existence of anything, though of course they always affirm that what they do not deny is all existence, by which, if they deny an aggregate, we learn nothing about any given aggregant. Therefore (if we write \bar{y} for not y) when the symbolic logician says $x\bar{y} = 0$, he means that all x is y , if there is any x , which he does not thereby affirm. If this has to be affirmed he will affirm it separately, say in the form $x > 0$, just as particular propositions, which are wholly existential, may be put in the form, $xy > 0$. It must be admitted, however, that existential propositions do not fit very well into the system, and there is a temptation to hand them

¹ Explained in ch. v. and applied elsewhere, especially in ch. xii., "Miscellaneous Examples".

over to the theory of probability, to which undoubtedly they also belong. Mr. Venn resists this temptation and puts them in the form $xy = v$, this v being a conventional symbol for a class greater than none and also, for the sake of symmetry, less than the universe. This seems to show that if Mr. Venn consents to take account of such propositions it is not because $xy > 0$ is the contradictory of $xy = 0$. He never looks at particular propositions in this light: indeed I cannot think he has escaped confusion in the matter of contradictories; at least, under the head of "Generalisations of the Common Logic," pp. 324 ff, he does not stick to the simple definition of a contradictory as that which contradicts and does nothing else not therein implied.

In the case of existential import, instead of expressing our meaning we have been interpreting our expressions. There are two other interesting instances in which this inverse process is performed or discussed: "class symbols as denoting propositions" (ch. xviii.) and "class symbols" turned into symbols of intent (ch. xix., pp. 390-399). The former concerns propositions about propositions and the problem is solved by Mr. Venn in two ways, first by considering propositions as answering to classes in a universe of possibilities and thus making the logic of propositions a logic of classes in principle, secondly by taking propositions as expressed by equations and showing how to express propositions about the propositions by equations depending on the equations, and thus connecting the proposition system with the already developed class system directly. I believe his processes and his explanations of them to be perfectly correct, but I find an obscurity in the subject which he has not wholly removed. A proposition must be true or false and the class of possibilities represented must be all or nothing. So we may affirm it by writing $x = 1$, and the contradictory will be $x = 0$. By the already developed class system a proposition may be affirmed in the form $x = 1$, but the contradictory is $x < 1$, not $x = 0$. If now, for a proposition about two propositions, we take a universal negative as the most symmetrical in form, $xy = 0$ will express that if x or $y = 1$ the other = 0, while if one = 0 the other may be anything: this as it should be; but if x or y is neither 1 nor 0 the other is not quite free, it cannot be 1. Something seems to go uninterpreted, and I suspect it was to exhaust his symbolisation that Boole devised his interpretation in terms of time, and not for the sake of an arithmetical basis. In its results indeed a logic in which the terms are propositions may be arithmetical as a class logic cannot be, for in a naught-and-one algebra the law $xx = 1$ is true already.

With respect to the possibility of a symbolic logic of Intent, I cannot exactly disagree with Mr. Venn's generally negative conclusion: but I find his discussion less suggestive than usual. By the way, it ought to be pointed out that the question is not merely one of interpretation: we do not care for a special application to the sort of things called attributes, and to the particular classes of them which make the intents of particular terms: the problem is to find general relations between extent and intent in the same matter. It is agreed

that intent consists of attributes all belonging to everything within the corresponding extent and not all belonging to anything without it. But of all such attributes, or of what sort of selection? Mr Venn, as I understand him, finds all opinions represented among logicians, from that which stipulates for all such attributes to that which is content with any selection satisfying the conditions; but he says that, for his purpose, almost any of these views, except the extreme ones, will answer equally well (pp. 390 ff). His purpose is to show that the thing cannot be done, unless to a trifling extent: the meaning is therefore that the problem may be possible if intent is supposed to include all the common attributes or, indifferently, any distinctive selection of common attributes, but that otherwise it is all but impossible. The former proposition is barely suggested: the latter takes up several pages; but I cannot help thinking it might be better proved in as many lines, because a specified selection of attributes constituting the intent answering to a given extent must be determined by the conditions of the particular case, and perhaps by conditions of a metaphysical sort; it must be, from Mr. Venn's point of view, material, extralogical. Clearly, then, the only chance of obtaining general relations is this: find the general relations, if any, which would exist if 'intent' were understood according to either of the 'extreme' views; any equations expressing them will determine inequations true of any given intents. But just because so widely applicable, such a result would at best be extremely vague and probably as good as none. Mr. Venn's way of proving the problem impossible is by objections of detail. I venture to leave these undiscussed because, in proportion as I perceive them to be precisely relevant, I think they are vitiated by what I think vitiates other arguments which I have seen on this matter, the tacit assumption that if propositions in intent could always be found corresponding to given propositions in extent, negative propositions would be represented by negative and particular by particular. Yet if anything is especially familiar in the relations between extent and intent, is it not their inverse variation? This holds not indeed with exact, but with approximate or statistical regularity. To *none* then should correspond not *none* but the *universe*, approximately, and to *something*, accordingly, *less than the universe*. In fact, I believe it will be found that a correlation of the form so often noted above exists with certain modifications, I do not say between extent and intent, but between collections of things and corresponding collections of their attributes, provided the latter collections are complete as well as the former. Mr. Venn himself, in an unexclusivist humour, remarks (p. 397) that " 'extensive multiplication' corresponds to 'intensive addition' ". The imperfect convertibility of this proposition is connected with the incompleteness of the collection which constitutes the intent of a term, but the matter is affected by other complications which make this an unfit place for discussing it further.

So much for the principles of expression and interpretation. I have given up much more space to them in proportion than Mr. Venn

has, because, while they belong as essentially to the subject as anything in the book, they are much more matters of discussion than their applications, which fill the central chapters, viii.-xv., on Development and the Theory of Equations. A critic's chief business with these chapters is to recommend them to those who wish for clear and connected views of the method and even of the principles already discussed. They assume no previous knowledge in the reader, but I am mistaken if readers with previous knowledge will not add to it considerably. The exposition may be said to be inductive; I mean that in each branch of the subject Mr. Venn elicits a method from a simple case and generalises it into the definitive method. In a chapter (xii.) of "Miscellaneous Examples" he shows how Boole's methods may be abridged in most actual cases. This Boole quite neglected or avoided, unfortunately for his credit with some readers, and I think even Mr. Venn exaggerates (p. 317) the prolixity of the general procedure; but it is a special advantage of Mr. Venn's manner of exposition that it brings out the difference between solutions more or less ingenious of particular problems and a general method which, however tedious, will certainly solve every possible case. He does not inquire whether Boole's work has been abridged by the general methods of later symbolic logicians.

It may seem a small matter, but there is much instruction in Mr. Venn's treatment of fractional expressions (ch. iii.). As I have said, he shows that they are not uninterpretable. Of course

unless all x is y , $\frac{x}{y}$ is uninterpretable, just as $y - x$ is: but if so it denotes a real class which, when restricted by y , that is, reduced to what it shares with y , becomes x . The class thus limited is partly indeterminate; we only know that it includes x and is included in $x + \bar{y}$; but the result of an inverse operation usually is in some way

indeterminate. The extreme case in all respects is the expression $\frac{0}{0}$:

under the general rule this means a class which restricted by 0 becomes 0, in other words any class whatever. This is quite satisfactory, provided it is understood that in particular cases the

range of $\frac{0}{0}$ may be restricted; thus if $x = \frac{0}{0}y$, determinate values of

x and y will not indeed determine $\frac{0}{0}$ but will require that it include xy .

Mr. Venn makes $\frac{0}{0}$ his typical and primary expression of the indeterminate. As an indeterminate coefficient may be introduced independently of the inverse operation of division, I prefer a conventional class symbol:

this has in its degree the advantage of generality over $\frac{0}{0}$ as $x = \frac{0}{0}y$

has over $x = xy$ (p. 158). Indeed I suspect that the use of a sign which looks more like a symbol of relation than a class term has almost led Mr. Venn to make it part of the copula in defending Boole (p. 173)

from the odious imputation of adopting the quantification of the predicate. With Boole there is no predicate to quantify, but this is just because his copula connects two quantified terms.

It remains to say something of Mr. Venn's comparisons of the system he adopts with older organisations of thought, that is, chiefly with the historical Aristotelian, but also, as he is careful to keep us aware, with the logic implicit in language. Perhaps this part will be the most interesting to many readers, but it is not the most essential to the subject and it is the part I am least prepared to do justice to. Ch. i., "On the Forms of Logical Proposition," is a typical specimen: it reproduces a paper in *MIND* for July 1880, but to the comparison of systems of proposition it adds an account of the forms of syllogism properly representable by Euler's diagrams. This (p. 22) is the correct way of describing them, not as forms of syllogism admissible under the corresponding "five" forms of proposition: otherwise it would be an unaccountable piece of conservatism to reject for ambiguity those forms which give less than five conclusions. In other chapters the question of existential import gives repeated occasions of contrast between the old instruments and the new. On this and other points it ought to be unnecessary to say of a writer so far from being one-sided as Mr. Venn that he does not wish to see Aristotle superseded by Boole. "Some of the most instructive portions" he says (p. xxv.) "of the common system are just those which Symbolic Logic finds it necessary to pass by almost without notice": in what is common to both, the old point of view has its own advantages, and among these he counts its "close dependence upon popular speech," thus turning the tables on Mr. Sweet and Mr. Sayce, but I venture to think accepting too much from them as to the fact. Conversion and Opposition are among the things for which he values the old system; but he finds places for them or their analogues in the new. Conversion becomes the solution of the problem "given y in terms of x , find x in terms of y ". On Opposition, as I have intimated, he does not satisfy me, but the discussion is suggestive, at least. In parting from the old logic, I will take up a little challenge addressed to it. Ulrici, it seems, finds nothing in Boole but a translation of the old logic into mathematical formulas. "One would like," says Mr. Venn, speaking of elimination, "to see the original of the translation in the case of this formula $f(1)f(0) = 0$ " (p. 303, n). It is the conclusion of a syllogism in Celarent, Cesare or Camestres, the term $f(1)$ standing in the negative premiss and $f(0)$ in the affirmative. This is obvious from Boole's point of view, but it is also manifest from the older. For if M is all, the premisses only say that P in Celarent or Cesare is naught, and if M is naught they only say that S is naught; but these premisses are taken to be summed up in $f(M) = 0$, therefore $P = f(1)$ and $S = f(0)$. Ulrici ought to know best whether, given a middle term and a wilderness of propositions, he is ready with an infallible way to find extremes for premisses in A and E exhausting such data.

Many of the points taken in these pages I have discussed with the

author in various ways. This makes it easier for me to discuss them here, but it is not favourable to the objectivity of my judgment on the value of the work. However there can be no doubt of its thoughtfulness and suggestiveness or, in essentials, I think, of its soundness and accuracy. I need not describe to readers of *MIND* that sort of humorous detachment which keeps a man from losing himself in his subject: this book is not, I think, absolutely free from what is a weak side of that quality, an almost sceptical suspicion of formulas which leads occasionally to acquiescence in their inadequacy when less acuteness and industry than Mr. Venn's would be enough to get to the bottom of a difficulty. But the want of the quality itself has before now wasted good work, and I should think its presence will much increase the influence of Mr. Venn's expositions and discussions: it certainly contributes to their value.

C. J. MONRO.

Mathematical Psychics: An Essay on the Application of Mathematics to the Moral Sciences. By F. Y. EDGEWORTH, M.A., Barrister-at-Law. London: Kegan Paul & Co., 1881. Pp. viii., 150.

Whatever else readers of this book may think about it, they would probably all agree that it is a very remarkable one. The fearless manner in which Mr. Edgeworth applies the conceptions and methods of mathematical physics to illustrate, if not solve, the problems of hedonic science, is quite surprising. As the invisible energy of electricity is grasped by the marvellous methods of Lagrange, so may the invisible energy of pleasure admit of similar handling. The soul is likened to a steam car moving upon a plane in a direction tending towards the position of minimum potential electro-magnetic energy, but with inconceivably diversified degrees of freedom. The book throughout proceeds upon the conception of Man as a *pleasure-machine*; but the great difficulty seems to consist in the fact that society is a great aggregate of such machines, the collisions and compacts between which "present an appearance of quantitative regularity in the midst of bewildering complexity resembling in its general characters the field of electricity and magnetism" (p. 15). It would be a great mistake, however, to suppose that Mr. Edgeworth's investigations, though stated in so daring and apparently erratic a manner, are devoid of scientific basis and exactitude. The book is one of the most difficult to read which we ever came across, certainly the most difficult of those purporting to treat of economic science. But it may, nevertheless, be recognised in the future as containing new and most important suggestions. Starting from such empirical bases as Fechner's law, Wundt's curve of pleasure and pain, or Helmholtz's formulæ, Mr. Edgeworth undertakes to determine the distribution of means and of labour which shall be conducive to the highest aggregate of well-being. Some of the conclusions drawn are very curious, but after a little consideration will probably commend themselves to the common sense of the reader. Thus (p. 66) the

distribution of labour as between the equally capable of work is equality, and generally is such that the most capable of work shall do more work—so much more work as to suffer more fatigue. The general tendency of Mr. Edgeworth's philosophy is towards a hierarchy of social ranks rather than rigid equality. Considering that the highest in the order of evolution are most capable of education and improvement, he holds that in the general advance, the most advanced should advance most. It is deduced that population should be limited, so that pleasure-giving means should not be too much attenuated. But the hedonical conclusion on this head is not necessarily of the same extent as the Malthusian. A good specimen of the kind of problem which Mr. Edgeworth has the courage to attack is stated on p. 69, namely—"Not assuming that all sections (of society) multiply equally, to find the average issue for each section, so that the happiness of the next generation may be the greatest possible". The general answer, if we gather it rightly, is that the average issue shall be as large as possible for all sections above a determinate degree of capacity, but zero for all sections below that degree. The last deduction has been carried into effect in poor-houses since 1834, but it is to be feared that outside of the poor-house the returns of the Registrar-General would show great divergence from Mr. Edgeworth's megisthedonic curves.

The remarks upon the hedonic bearing of our social institutions are often very interesting. Thus Mr. Edgeworth evidently regards the custom of family life favourably as compared with communistic education, because it secures for the better born better education. He also concludes that "account being taken of existing, whether true or false, opinions about the nature of woman, there appears to be a nice consilience between the deductions from the utilitarian principle and the disabilities and privileges which hedge round modern womanhood" (p. 79). But we do not find that the author furnishes any explanation of the very different position of women in the lower races, from which, of course, the higher races have emerged. Among the Australian aborigines, for instance, the husband makes the wife carry all the burdens, and knocks her on the head if she declines or flags. The anthropologists have hardly succeeded as yet in reconciling with theory the unfortunate position of women in primitive society.

The general conclusion drawn from these speculations is worthy of notice (p. 82). "While we calculate the utility of pre-utilitarian institutions, we are impressed with a view of Nature, not, as in the picture left by Mill, all bad, but a first approximation to the best. We are biased to a more conservative caution in reform. And we may have here not only a direction, but a motive, to our end. For, as Nature is judged more good, so more potent than the great utilitarian (Mill) has allowed, are the motives to morality which religion finds in the attributes of God."

To the principal text of the Essay there follow appendices "On Unnumerical Mathematics," "The Importance of Hedonical Calculus,"

"The Formulæ of Exchange," "The Errors of the ἀγνωμενῆτοι," and even the Freedom of Contract as illustrated by the present crisis in Ireland and the Trades' Union question. These appendices are full of suggestive remarks, and are generally more ready of comprehension than the body of the Essay.

There can be no doubt that in the style of his composition Mr. Edgeworth does not do justice to his matter. His style, if not obscure, is *implicit*, so that the reader is left to puzzle out every important sentence like an enigma. It is probable that most of the propositions are worth puzzling out, and that they would be puzzled out if some great pecuniary matter like a great lawsuit or the design for a great engineering work depended upon their comprehension. But social science has not yet taken such a rank that students feel bound to master any new truths propounded; and it is a misfortune, therefore, that a book, which at all events purports to contain a new science, should be such hard reading. Students of the book will probably be divided into two widely separated classes:—those who hastily set it down as nonsense; and those who, allowing that it is an uncouth and even clumsy piece of literary work, see in it unquestionable power and originality. Now and then, indeed, we come across a sentence or a paragraph in Mr. Edgeworth's work showing much command of language and no slight elegance and picturesqueness of style. But immediately again we fall among enigmas. Would it be too much to ask of Mr. Edgeworth that when he prepares his next work he will endeavour to save the labour of his reader, even at the expense of his own labour? In fact, may we not apply to the author his own theorem already quoted showing that the best distribution of labour "generally is such that the most capable of work shall do more work"?

W. S. JEVONS.

Fichte. By ROBERT ADAMSON, M.A., Professor of Logic in the Owens College, Victoria University, Manchester. ("Philosophical Classics for English Readers.") Edinburgh and London: Blackwood, 1881. Pp. 222.

A special interest and importance attach to the present volume of the "Philosophical Classics," because it is the first work in English which professes to deal with Fichte primarily and distinctively as a philosopher. Dr. William Smith's translations of the popular works, and the eloquent Memoir by which he accompanied them, have made Fichte's figure tolerably familiar to many, it is to be hoped, as a man, a patriot, and a preacher of ethical and social reform. But the philosophical groundwork—the text of which these phases of his activity were but the application—is suggested there rather than developed. It has, indeed, been Fichte's fate, as Prof. Adamson points out, not in England only, but also in his fatherland, to be remembered rather as a patriot and an impassioned preacher than as a philosopher. It was fitting that the "Philosophical Classics" should endeavour to

remove this anomaly; and it is satisfactory to note that Prof. Adamson has not yielded to the seductions of popular treatment, which, in Fichte's case, were extremely strong. He has rightly judged that it is with Fichte in his fundamental quality as thinker that his expounder has to deal. Certainly, by so doing, he has sacrificed much that might have recommended his volume to "the general reader"; but this was inevitable, if the scientific principles of the *Wissenschaftslehre* were to be discussed at all. There will be but one opinion as to the admirably thorough fashion in which Prof. Adamson has done his work. In the Prefatory Note he says that the volume "has no pretensions to be regarded as more than an introduction" to Fichte's philosophy. This is true, of course, in the sense that the limits forbid elaborate analysis; but it is an introduction by one who has a survey of the whole field, and who brings all the different parts together into a consistent whole. Prof. Adamson has laid the philosophical public under a distinct obligation; and those who have studied the original will know best the value of his concise and carefully-balanced statements.

The Life is succinctly and gracefully told, but does not call for special remark. The view taken of Fichte's character and of his conduct in the different circumstances of his life coincides in the main with that of Kuno Fischer in his *Geschichte der neuern Philosophie*. That is to say, it is more judicial than Dr. Smith's. It does full justice to the nobility of the man, but it does not ignore a certain hardness of nature and limitation of view, which passed at times into obstinacy and ethical pride. Fichte's stormy and short-lived Rectorship at Berlin disclosed some of these less pleasant qualities as well as his notorious unpracticality. As Solger plaintively remonstrates:—"When he proceeds in all matters, the greatest or the least, from the axiom that the idea has selected but one organ—*viz.*, Herr Fichte himself—it does appear to me that individuality becomes simple despotism."

The Philosophical part of the volume begins with chap. v., which is entitled a "General Idea of Fichte's Philosophy". It rather aims at preparing the reader for Fichte by a comparison of the psychological and transcendental—or, as they may be called, the English and the German—methods of conceiving the philosophical problem. This is, in my opinion, perhaps the most valuable and instructive part of the book. The reason of the necessary inadequacy of the psychological method has rarely been so plainly and forcibly put. Assuming that the function of philosophy is "to render intelligible the whole of experience," Prof. Adamson points out that English philosophy starts with the assumption of two spheres of existence, an inner and an outer. The generalised results of an examination of the latter set of facts form the natural sciences; the same methods of observation applied, in psychology, to the phenomena of the inner life are supposed to give us a philosophy of experience. In opposition to this view Transcendentalism insists that psychology is entirely on the level of the natural sciences, and that its conclusions "have validity only

in subordination to the abstraction from which we start" (p. 111). That is, if we assume the division of experience into subjective and objective, it gives us a certain amount of information about the laws—the recurring order—of subjective facts. But the nature and meaning of the distinction itself have not been explained, and the need of this explanation is, according to Prof. Adamson, "the special lesson of the critical philosophy". "While in words we appear to assert that the two orders of facts make up all that is, we have in reality placed alongside of them, in a quite inexplicable fashion, the thinking subject or mind, a *tertium quid* which certainly stands in need of some explanation." The nature of intelligence, then, as the ultimate for which the distinction exists, remains to be explained, and this is the special task of philosophy. In other words, philosophy has to determine the nature of the relations which constitute the distinction, and which render possible the synthesis of subject and object in intelligence. This involves the "criticism" or evaluation of the different categories or modes of relation which science employs, and their successive rejection as inadequate to express the relation of intelligence to experience. The notions in which we finally rest will evidently constitute an explanation of what we mean by intelligence or intelligible experience. Applying this to Berkeley, Prof. Adamson finds in him "the true note of the transcendental method," in so far as he refuses to admit the abstraction of matter or things apart from the unity of conscious experience. But Berkeley takes consciousness as equivalent to "the isolated states of the individual thinker," and so God becomes for him only another name for things-in-themselves. Inner and outer—the finite spirit and God—are related, in his system, as two substances that mutually determine one another. This notion of reciprocity or mutual mechanical determination is the highest category to be reached by taking the two spheres separately; but it has no meaning when used to formulate their unity in experience.

Chap. vi. proceeds to specify Fichte's problem still further. The fundamental distinction which he draws between Dogmatism and Idealism is first explained, and then his relation to Spinoza (by contrast) and to Kant (by direct descent) is indicated at some length. Prof. Adamson errs here, if at all, by being too abstract. Fichte's own statement of the antithesis between Dogmatism and Idealism in the "First Introduction to the *Wissenschaftslehre*" is so clear and vigorous that it might have been more largely drawn on. It is difficult, too, to put the contrast between the *Wissenschaftslehre* and Spinozism more forcibly than is done by Fichte himself at the end of the first part of the *Grundlage*. Taking Spinozism as his example of a consistent Dogmatism, he explains Dogmatism there as the attempt to transcend the Ego and reach the higher abstraction of Being or Thing; whereas Critical Philosophy is, in its very nature, *immanent*, making no effort to pass beyond the circle of intelligence. The distinction between Kant's philosophical method and Fichte's is very clearly drawn by Prof. Adamson on p. 135. In both the supreme notion—that to which all others are related—is self-consciousness.

But "the method of procedure may be either an investigation of the idea of self-consciousness, the determination of the conditions under which it is possible, and the evolution in strict sequence of the elements which are embraced in it; or an analysis of knowledge, of experience, as it presents itself in ordinary empirical consciousness, and the determination of the features in it due to the presence of this central unity". The first of these methods was Fichte's, the second was Kant's. The criticism of Kant which follows dwells on the disconnected way in which, as a result of his method, he presents the different factors of knowledge and the different spheres of experience; and draws the conclusion that, in "the ethical idealism with which the Kantian theory closes," we have the point from which the theory presented itself to Fichte as a unity. Prof. Adamson is undoubtedly right in insisting that the notion of a world of ethical ends is the real noumenon of the Kantian system, and that Kant's thought has not been fully grasped by anyone who fails to perceive this. Kant might have said with Fichte—"Our world is the sensualised material of our duty". But, at the same time, his method makes it impossible for him to bring the world of sense and the world of duty together. The material remains separate from the duty (the form) which is to be realised in it; it is supplied, to use an expression of the *Critique of Pure Reason*, "anderweitig," from another quarter, and so remains alien to the purposes which are to be fulfilled in it. Hence there seems some danger of creating a false impression when Prof. Adamson throws the blame of the dogmatic interpretation of the thing-in-itself on Kant's "incompetent followers". We cannot distinguish too carefully between our philosophical criticism of Kant and our historical interpretation of his system. There can be no doubt, even if we had not Kant's explicit declaration, that for historical Kantianism the *Ding-an-sich* remains what Jacobi called it, a presupposition without which we cannot find our way into the system.

The account of Fichte's starting-point and "First Principles" is given with much sureness and breadth. The 25 pp. which are devoted to "Development of the System" suffer, as might be expected, from compression; but the most important point—the connexion between the theoretical and the practical section of the *Grundlage*—is made abundantly clear. Prof. Adamson lays deserved stress on the fact that the practical Ego is the source of reality. In the theoretical part the necessary notion of consciousness is expounded, but we are dealing only with knowledge till we reach the practical part; and knowledge, as Fichte says, "just because it is knowledge, is not reality". Reality, he says, arises for the Ego only in feeling, and self-consciousness as a *fact* does not exist except through the impeded striving of the practical Ego and the self-reflection which is thereby caused. This "Anstoss" is the "necessary circle" which Fichte offers as a deduction of the matter of sense which Kant had merely assumed. The fundamental principle of his philosophy is not reached, therefore, till nearly the end of his exposition.

In his discussion of the later works, Prof. Adamson takes the view

of a continuous development and radical identity of Fichtian thought from first to last, thus siding with I. H. Fichte, Löwe, Harms, and Kuno Fischer against critics like Erdmann and Schwegler. While admitting that only the first stage of Fichte's speculations has had any historical influence, he still sees in the second "the true and final form" of his philosophy. It seems to me that the key to the difference of the two positions—for a certain difference is admitted—is to be found in Fichte's change of attitude towards what he called at the earlier stage the Ego as idea or completed self-consciousness. In a remarkable passage in the Second Introduction (translated by Prof. Adamson on p. 151) Fichte draws the distinction between the Ego as "Begriff"—abstract self-consciousness—and the Ego as "Idee"—as self-consciousness in which the whole world is rationalised and determined as the matter of egoity ("Materie der Ichheit"). He adds significantly that the Ego in this sense exists *only* as "Idee"; it is a "Sollen," unattainable, but always to be pursued. This is thoroughly in accordance with the general tenor of his early Idealism, which he defined as not dogmatic but "practical"—not determining what is, but what ought to be. But in his later philosophy, as a consequence of the increased attention which his expulsion from Jena led him to bestow on the religious consciousness, this "practical" standpoint was surmounted. The Ego as Idea re-appears in the later works as the Divine Idea of the world, and, as such, has necessarily an objective validity attributed to it. In a somewhat broken and mystical way, therefore, Fichte realises in these writings the Hegelian view of the world; and this is, perhaps, the reason why hard and fast Hegelian critics, intent on the symmetry of historical development, are inclined to ignore this phase of his speculations. But it must always be admitted that the realisation is only broken; and Fichte's separation of the Absolute as predicateless "Being" from its manifestation appears to me deserving of heavier condemnation than Prof. Adamson visits it with. Such a separation is the root of all transcendent speculation and mysticism; so far as it is maintained, it must be considered a direct sublation of the standpoint of immanent Criticism taken up in the *Wissenschaftslehre*. In this respect I cannot but think that neither Fichte nor Schelling fully realised the perfect correlation of the two terms, essence and manifestation. Prof. Adamson admits, however, by his apology for Fichte's method of statement that it is not altogether satisfactory; and in the Introductory Remarks indicates his opinion that "the permanent results of Fichte's activity have been absorbed in the more comprehensive elaboration of the Kantian principles which makes up the philosophy of Hegel".

A. SETH.

Hindū Philosophy. The Sāṅkhya Kārikā of Īśvara Kṛishṇa. An Exposition of the System of Kapila. With an Appendix on the Nyāya and Vaiśeshika Systems. By JOHN DAVIES, M.A. (Cantab.), Member of the Royal Asiatic Society. London: Trübner, 1881. Pp. 151.

In this interesting and suggestive little book we have much compressed information and comment of an admirable kind. It is a compendium of Hindu Philosophy, based on a new translation of the disciple Iswara Krishna's Exposition of his master Kapila's "Sankhya" or rationale of the universe. The *Karika* or exposition consists of 72 distichs; and between these Mr. Davies has inserted a connective tissue of explanation and comment, with a fringe of philological and philosophical footnotes for further elucidation. The translation is in some respects an improvement on Colebrooke's, showing more speculative insight, and a more delicate handling of the fragile subtleties of Hindu thought. The notes and comments exhibit very considerable and, in the main, correct appreciation of the affinities and affiliations of western and modern philosophies to the Sankhya. In them lies the main interest of the book. They call attention in a very striking manner to the apparently spiral secular movement of human thought, wherein as centuries pass Buddha appears abreast of Kapila, and after two millennia the German pessimists, in line with both. The movement is not circular. The ancient and modern standpoints do not quite coincide. While Kapila is an irreconcilable pessimist, regarding conscious life intolerable on any terms, and seeking relief, yet, unlike the Germans, he is a dualist in his ontology, assuming two distinct and independent entities—"Soul" and "Nature". There are many souls, but only one "nature" or Prakriti. Soul is the pure indeterminate Ego or subject—a thing-in-itself and by itself—characterless and inert—aloof even from "intellect," "consciousness," and "mind," for these and all else fall without it as objects, which together constitute "*manifested nature*," Vyakta. But Prakriti or Pure Nature is equally undetermined and without character or quality (Avyakta). "It is eternal, universal, without parts, invisible, and is *inferred only by reasoning*"—and, therefore, noumenon. It can scarcely be called as by our author, "primordial matter," for it is the mere possibility of both matter and phenomenal or objective mind, just as "Atman" or "Jna," the soul is the barren possibility of a knowing subject. There are these two permanent possibilities; but as yet nothing *exists*. There is no seer and naught to be seen—only the eternally distinct and isolated grounds or possibilities of these have, in some ineffable way, *being*. From troublous painful *Daseyn* to this *Seyn* reposing delicately poised on the edge of nothingness, the soul seeks to return. Hence the motive of philosophy, Sankhya, or discriminative reflection. For, if the pure subject, which the soul essentially is, can but once bring itself to see that it has no part or lot in any object, that all objects are utterly alien from it, the spell will then for ever be broken that has entangled it in the net of grosser and subtler objectivity (Vyakta), which world, body, brain, and consciousness are.

But how has the net come to exist, and the soul to be caught in it? Apparently through the unlucky neighbourhood of the two eternal self-identical beings. For the homogeneous Prakriti had within it unawares three possibilities of heterogeneity, and by something

like electro-magnetic induction, if so gross a figure may be used in this transcendent connexion, the mere proximity of the soul aroused these possibilities into actual and active difference. "So Prakriti is changed into the principle called the Great One (Buddhi, intellect)."

But it is not to be supposed that this occult quasi-solicitation implies desire or will or effort or force on the part of either eternal being, though it may be as if Prakriti had said, "I want to be seen," and Atman, "I want to see". There is no "will to live" or desire to be manifest here, as in the German pessimism. And there is no force, persistent or casual, in the Sankhya, as there is with Mr. Spencer. In reflection, Kapila could only discern movement, and was content. Anything more was, perhaps, too difficult to find.

The book of genesis is now opened. Buddhi begets "Consciousness," which first procession reminds Mr. Davies—but as I think rather doubtfully—of the Cartesian "*Cogito ergo sum*". Nor can I see how this "Consciousness" only-begotten of "intellect" can be "nearly equivalent to the mind-stuff" of Prof. Clifford.

Considering its origin, it is more like a stage in the Hegelian evolution of thought into externality. And I do not see with Mr. Davies that any trace of Hegel there might have been in Kapila has been obliterated by his transcendent dualism, for there is the same absolute equipoise and opposition of subject and object in the Hegelian synthesis. Synthesis, in fact, necessarily implies such.

From "consciousness" proceed "sound, touch, smell, sight, taste," and the rest of the world and man. Are we to take this as metaphysic or cosmogony? Perhaps both. Finding in his reflection the nature of things to be consciousness, Kapila may very easily have taken that for a discovery of how things came to exist. But let it be metaphysic, and we have the world as phenomenon or representation, and there is a dim foreshadowing of Kant. The cosmic harmony and unity is effected by the mediation of intellect or thought. Buddhi may be the *locus* of the Kantian categories; and Manas (mind?) which is with Kapila a further precipitate of Buddhi, and another intermediary, reminds one of Kant's schematising imagination. It can scarcely be as Mr. Davies seems to think, sensorium or central brain. With Kapila, the derivation is always downwards from thought. And even if it may be said that with him, in the *order of knowledge*, "*nihil est in intellectu quod non prius fuerit in sensu*," yet we cannot agree with Mr. Davies in associating Kapila with materialistic sensationalism; for always with him, in the *order of existence*, *nihil est in sensu quod non prius fuerit in intellectu*. For the same reason, the quotations from Dr. Maudsley are not apt illustrations of the text; and "the spiritual body" of the authors of *The Unseen Universe*, though composed of highly attenuated matter, is rather too gross a companion for Kapila's "Linga," which is the permanent envelope of the pure subject whilst it *exists* and migrates—the innermost core, as it were, of the empirical Ego.

Again, it is surely a mistake to compare Kapila's soul to "the absolute Ego of Fichte," which is genetic and single—the one creative

ground of all that is. Even if Kapila had not rather gratuitously assumed many souls, there would remain the coeternal and uncreate object, constituting a polar dualism which is more suggestive of Schelling, in one of his many phases, and of Hegel. May I venture to say, by the way, that Hegel cannot be quite fairly represented by quotations from Morrell and Chalybäus?

In an interesting appendix Mr. Davies succeeds in showing that, apart from Kapila's assumption of an eternally detached and independent soul, he almost coincides with Spinoza. *Prakriti* corresponds to "*Natura naturans*"; manifested, it is "*natura naturata*"; and these two are one, only distinguished as essence and phenomenon (or *Maya*), but not separate.

Of course we must take Kapila as we find him; and no doubt as he stands out for us in this *Karika*, he is dualist and atheist. Yet, a very little gentle manipulation might exhibit his implicit monism, and bring him nearer to Spinoza. As *existents*, the many souls and the one *Prakriti* are one co-existence, the unity of Being and Knowing: and as *pure beings*, they are absolutely indistinguishable from one another and from naught. For thought, they collapse into one, and that one sinks into non-being. What then remains is *Vyakta*, the phenomenal world of subject and object, co-existent, co-essential, and inseparable in their utter contra-distinction. And this residuum of Kapila exactly corresponds with the residuum of Spinoza, when his infinite attribute of thought or consciousness has absorbed and superseded all the other infinite attributes, rendering them gratuitous and otiose hypotheses—a result that is inevitable in the dialectic of reflection.

The main agreements and differences between Kapila and modern German pessimism have been pointed out. Mr. Davies enters fully into them in his last appendix. It only remains to signalise the last difference. With Kapila the end is differently brought about. Emancipation comes to him from pure contemplation or *gnosis*. This is put in graceful form towards the end of the poem.

"As a dancer, having exhibited herself on the stage ceases to dance, so does Nature."

"Nothing is more modest than Nature. Saying 'I have been seen,' she does not expose herself again to the view of the soul."

"It has been seen by me," says the one, ceasing to regard: 'I have been seen,' says the other, and ceases to act."

J. BURNS-GIBSON.

Les Maladies de la Mémoire. Par TH. RIBOT. Paris: Germer Baillière, 1881. Pp. 169.

This little volume, the main conclusions of which were given in *MIND* XXII, 296, is an opportune presentment of the latest results reached in the physiology and pathology of Memory. It has an equal interest for the psychologist and the alienist. It is marked by accuracy of statement and caution in reasoning. It brings together a large number of curious facts; and it seeks to interpret

these by a skilful use of the most plausible current hypotheses of physiological psychology. In this notice I propose to confine myself to one or two points of special psychological interest raised by M. Ribot.

After the manner of contemporary physiologists the author extends the meaning of the word memory, regarding it as an endowment of the organism as a whole. According to this view consciousness is only an accidental accompaniment of the process of recollection. The essential thing is the trace or modification left in the nerve-elements (the "statical base"), and the connexions formed between different elements ("dynamical base"). M. Ribot, by the way, thinks (p. 14) that the second condition has not yet been recognised, though this is hardly correct, I imagine, with respect to English psychologists. The arguments in favour of the multiplicity of these "dynamic associations" are well put, and coincide with those recently employed by G. H. Lewes, as well as by Mr. Cyples in support of his theory of the "neurotic diagram". What accounts for memory ever being a process of conscious recollection is the presence of certain physical conditions, namely, the intensity and duration of the central actions. All this is, I think, just and indisputable. But is this enough? Given certain nerve-structures modified and connected in a particular way, is the whole of the phenomenon of conscious recollection straightway explicable? On the psychical side, to recollect is to pass from the present to the past, to reconstruct a piece of past experience by help of some present psychical fact. This is something more than the "recollection" involved in perceiving a familiar colour or tone. In the act of recollection there is a process of antithesis, a setting up of a past over against the present, and yet the grasping of this past through some present representation, *analogue*, or 'link of similarity'. How do physiological conditions help us to seize this fact? M. Ribot simply says (p. 29) that in the case of conscious recollection the dynamic nervous associations play a much more important part. Here he seems to me to overlook the fact (only in appearance ever lost sight of by Professor Bain in his separation of the laws of Contiguity and Similarity), that memory always sets out with the identification of a present with a past similar mental state. How conceive this act of identification on its physical side? How much can physiology tell us as to the conditions of this consciousness of something past and recovered? May not its function be limited to defining the differences of conditions according as the act of recollection is now little more than an identification, as when I see a person, recall our last meeting, but only vaguely represent the attendant circumstances; or now is largely a moving away to contiguous circumstances as when a name calls up a whole visual picture of a place once visited? This seems to me to be the nut that wants cracking in the physiology of memory. M. Ribot's ingenious attempt, on the lines of M. Taine's well known speculations, to fix the conditions of definite localisation in the past, does not meet my difficulty, which applies to all recollection alike. May not the omission, if it is an

omission, be due to a momentary adoption of the present fashionable under-estimate of the method of introspection? By all means let us have a thoroughgoing physiology of mind. But let us remember that it is *mind* which we desire to explain, and let us ascertain what this contains by the most painstaking subjective analysis, and never slur over difficulties by falling back on the unscientific notion that the conscious operation is an accident, which we may as well leave out of sight in framing our theories. M. Ribot is too good a psychologist to follow E. Hering and his yet bolder English imitators in a complete assimilation of 'conscious' and 'unconscious' memory. Yet his keen desire for the scientific illumination which modern physiology appears to promise, seems to me to have led him to make too light of the special problems which first arise when we reach those complex conscious operations which scientific psychology, following popular psychology, has so far at least marked off as "remembering".

But M. Ribot may justly say that, his book being concerned with diseases of memory, he was not bound to give an exhaustive account of the normal processes. Looking at his work from this point of view I find in it much to admire, and hardly anything to criticise. Subjects like the derangement of the sense of identity and the illusory feeling of familiarity in new objects are treated with great freshness, and with a full knowledge of the facts of disease. I miss one or two points; for example, the curious disturbances in the sense of duration which sometimes appear in mental disorders. I may be allowed in closing to express a regret that M. Ribot's interesting monograph did not reach me in time to profit by it in my own recent labours in the same direction.

JAMES SULLY.

Die Theorie der Erkenntniss oder die logischen Gesetze. Von Dr. HERMANN SCHEFFLER. Leipzig: Förster, 1880. Pp. 930.

This extensive Third Part of the author's huge work *Die Naturgesetze u. ihr Zusammenhang mit den Prinzipien der abstrakten Wissenschaften*, mentioned in MIND XXIII., 447, begins with the principles of science generally, and ends with a lengthy application to psychology, ethics, and social and political science. I cannot here attempt even an analysis of so large a scheme, and will merely give a few extracts and remarks sufficient to indicate the character and aim of the work so far as its more strictly logical principles are concerned.

In indicating his departure from Kant as a sort of starting-point, he substitutes for the well-known four heads of categories of that author five "Categoremata of Concepts": *viz.*, Quantity, Inherence, Relation, Quality, and Modality. The analogy of each of these with a corresponding element in mathematics is worked out with great minuteness. Of these five, Quantity is taken in the ordinary sense, and forms the analogue of Quantity in mathematics. Inherence means the relation which a concept bears to some starting-

point from which it may be considered to proceed, and is regarded as analogous to Position in geometry as referred to an origin. "Its grammatical expression is predication or assertion. . . . When we say 'the green tree,' or predicate greenness of the tree, we express by this predicate *green* that the tree, which without a predicate might have been represented, say, by a figure *ABCDE*, is, with that predicate conceived as transferred parallel to itself to the position *A'B'C'D'E'*" (p. 60). Thus the vector *AA'* represents the effect of the predicate *green*. This process may be carried on repeatedly, and in a positive or negative direction. "The expression, Charles was clever and handsome but not rich, contains a double forward step and a single backward one" (p. 77).

The third Categorema is Relation. This corresponds to geometrical Direction, and signifies the relation of one object to another. It is consequently a wider conception than that of cause and effect. Scheffler has an elaborate scheme for representing these relations by means of angles, which gives occasion to above a hundred pages of explanation and illustration by means of exponential expressions, the various roots of $(+1)$ or (-1) and all the rest to which one is accustomed in mathematical treatises upon such subjects. One example must suffice (the reader who is likely to follow it at all will probably be able to do so without a figure): Taking *A* as origin and *Ac* as axis, "let the angle $BAC = a$ represent a certain causation, *viz.*, that of begetting. Then *AB* is the begetter, *AC* the begotten, and the line *CD* which is the equivalent geometrically to a line transferred from the primitive direction *AX* along *AC*, . . . corresponds to the concept one who is begotten, say Alexander (*CD*) begotten of Philip (*AX*)" (p. 104). This employment of angular relation and its notation lends itself of course to the expression of repeated, and of inverse, conditions of relation.

The fourth Categorema is Quality, and its arithmetical analogue that of Powers. "Picture an individual, say a horse. It appears as a complex of connected conditions. Each of these forms a special or possible state of the concept to which we give the name of horse. This concept itself embraces what is common to them all, corresponding to a geometrical line which embraces all the points assigned under a certain condition. As a line has one more dimension than a point, or is a magnitude of a higher geometrical quality, so does this horse represent a conception of higher logical quality than any particular state in which the horse can appear to us" (p. 200). Or, more in detail, "there are four primary qualities corresponding geometrically to points, lines, surfaces, and volumes, and arithmetically to the four powers λ^0 , λ^1 , λ^2 , λ^3 . These four logical primary qualities are, Being as an observed condition, as a concrete individual, as an abstract concept, and as an ideal concept" (p. 213). The fifth Categorema is Modality. His use of this term departs still more widely from the usual, either scholastic or modern, sense of it. "The manifold of representations which is combined into a single cognition, into a logical whole, into a system, represents a law, and the Modality indi-

cates a formal or systematic connexion of the logical components of a cognition, consequently the dependence which exists between the elements of a system." "The arithmetical analogue of Modality is the function $y=f(x)$, or the law of connexion between the magnitudes such as x and y : the geometrical analogue is form or figure: the mechanical analogue is a system of forces (p. 229).

Like most of those who adopt mathematical notation in logic, Scheffler is forced into the consideration of extreme or limiting cases. His solution of these does not seem to me to be always very happy; the employment, for instance, of the vector notation leading us to the interpretation of two contradictories as bringing us back to our starting-point. Thus he interprets the expression "a future past" as placing us at the mathematical origin of the concepts of future and past, *i.e.*, the present. "A face which is at once ugly and beautiful is still a face, but stands, so to say, at the starting-point of those forms which are capable of making an impression" (p. 291). The reader will probably remember that, on the English or Boole system, two such statements as ' x is y ,' ' x is not y ,' combined together are interpreted as simply annulling x altogether.

As one would expect, there is a large resort to geometrical diagrams for the illustration of propositions, and these are of very varied kinds. (There are some 250 of such examples in the more purely logical parts of the treatise.) Those which are mainly employed are the familiar Eulerian diagrams, in which circles or other closed figures mark the outcome of the proposition by their mutual relation to one another in the way of inclusion and exclusion. On one occasion, in discussing an example cited by Schröder from Boole, he resorts to the plan which I recommended (I presume about the same time) of drawing figures to represent, by their mutual intersections, all the possible combinations, and then shading out those which by the conditions of the problem are found to be annulled (p. 742). The four successive powers, as he regards them, *viz.*, of states or conditions, of concrete objects, of genera, and of totalities, are also represented diagrammatically by points, lines, surfaces, and volumes.

His algebraic representation of propositions seems to me substantially identical with that of M. Delboeuf and Mr. Murphy (whom he does not refer to:—for that matter there are almost no references to other logicians except to J. S. Mill, and now and then to Ueberweg). His most general expression for the relation of the subject a and the predicate b is $a - y = b - x$. That is, he adopts the addition or subtraction form, as opposed to the multiplication form; the common part, if any, of the extensions of a and b being represented by either side of the above equation. Call this part c ; then by assigning various values of c in relation to a and b , we can obtain the propositions 'All a is b ,' 'All b is a ,' and various others. I have discussed this form of symbolic expression elsewhere, and will therefore only remark here that amongst other defects this form of it does not conveniently express the universal negative (as indeed Scheffler notices, p. 430). When the common part of a and b is put = 0, we have the

identity $0=0$: what we need in fact is to introduce another symbol for not- a or not- b , as well as for a and b .

As regards the absence of almost any reference to, or quotation from, other logicians, this leads, I think, in some cases, to a good deal of superfluous exposition of what must be very familiar to some of his readers. To take but one example. There is much objection raised to the insufficiency and inaccuracy of what he calls "the scholastic form" of proposition, 'Some x is y ,' (say rather the universal form of common speech employed by all logicians) on the ground that it does not distinguish between the cases of 'All y ' and 'Some y ' and a scheme is proposed to meet the difficulty. The familiar views of Hamilton, De Morgan, and so many others, do not seem to have come under his notice.

These short remarks are not intended to give any sort of abstract of the results arrived at by Scheffler, even in the more logical part of his volumes; but they may serve to give some hints of the character of the work. There is much that is original and acute in it, and the logician who is something of a mathematician can hardly fail, I think, to pick up valuable suggestions. But, speakly broadly, his analogies between Logic and Mathematics seem to me to be pursued into needless minutiae, and in many cases to be really altogether fanciful.

J. VENN.

VIII.—NEW BOOKS.

[These Notes do not exclude, when they are not intentionally preliminary to, *Critical Notices* later on.]

History of Materialism and Criticism of its Present Importance. By FRIEDRICH ALBERT LANGE, late Professor of Philosophy in the Universities of Zürich and Marburg. Authorised Translation by ERNEST CHESTER THOMAS, late Scholar of Trinity College, Oxford. In Three Volumes. Vol. III. London: Triebner, 1881. Pp. 376.

For the present we only note the completion of this work of translation. On another occasion, now that Lange's book is fully before English readers, some attempt will be made to appreciate its importance. The present volume includes the last part of the section on "The Natural Sciences" and the sections "Man and the Soul," "Morality and Religion".

A Sketch of Ancient Philosophy from Thales to Cicero. By JOSEPH B. MAYOR, M.A., Professor of Moral Philosophy at King's College, formerly Fellow and Tutor of St. John's College, Cambridge. ("Pitt Press Series.") Cambridge: University Press, 1881. Pp. xvi., 254.

In writing this scholarly and attractive sketch, Professor Mayor has had chiefly in view "undergraduates at the University or

others who are commencing the study of the philosophical works of Cicero or Plato or Aristotle in the original language," but also hopes that it "may be found interesting and useful by educated readers generally, not merely as an introduction to the formal history of philosophy, but as supplying a key to our present ways of thinking and judging in regard to matters of the highest importance". He stops short at Cicero and his contemporaries, regarding "Christianity as the true goal of the ethical and religious philosophy of the ancients," and seeing in the later Neo-Platonism such a mixture of Eastern with Western thought as makes it no more possible to be treated as a simple development of Hellenism than Christianity itself. In his view, "after the rise of Christianity, Christian and Pagan philosophy should be treated of together until the time when the West was again separated from the East and Western thought was crushed under the invasion of the barbarians".

The Critical Philosophy of Kant: Being an Introduction to the Study of the Critique of Pure Reason. By ARCHIBALD WEIR, B.A. London: Swan Sonnenschein & Allen, 1881. Pp. 112.

This exposition of the Critical Philosophy, down to the end of the "Transcendental Dialectic," was written in connexion with a short work intended to serve as an introduction to the study of modern philosophy, but is published separately, as being too long for the plan of that work. It follows pretty closely the lines of Prof. Caird's well-known *Critical Account*. A short "Historical Retrospect" (pp. 14) and a general chapter on "Kant and Transcendentalism" (pp. 18) introduce the exposition in a thoughtful way.

The Essence of Christianity. By LUDWIG FEUERBACH. Translated from the Second German Edition by MARIAN EVANS, Translator of Strauss's *Life of Jesus*. Second Edition. London: Trübner, 1881. Pp. 339.

"The first edition of this work was published in 1854, and, although a large one, has been long out of print. Many inquiries having been made for it since the recent lamented death of the translator, the publishers have determined to offer a second edition to the public, and have been advised to give it a place in their 'English and Foreign Philosophical Library'. It is an exact reprint of the first edition."

American Nervousness: its Causes and Consequences. A Supplement to *Nervous Exhaustion (Neurasthenia)*. By GEORGE M. BEARD, A.M., M.D., &c. New York: Putnam, 1881. Pp. 352.

Dr. Beard, whose views on Trance have repeatedly been brought before the readers of *MIND* (Nos. VIII., XV.)—and who, by the way, announces that he has now in the press a comprehensive work on that subject—here discusses in a characteristically racy manner the signs and causes of the physical condition of Nervous Exhaustion which he had treated medically in a former work. The condition is one which is so specially developed in the northern and eastern por-

tions of the United States that he calls it, not without a touch of national pride, American Nervousness. The subject for the most part lies beyond our scope; but attention may be directed to chapter iv. on "Longevity of Brain-workers and Relation of Age to Work". This particular subject, which has been long investigated by Dr. Beard, is included with the other in the present volume apparently because it is contended that the sufferers from "lack of nerve-force" have notwithstanding good chances of long life. Be this as it may—and Dr. Beard gives grounds for his assertion—his facts and arguments in regard to Brain-work, as performed differently at different ages but always promoting longevity, are worthy of note.

Origine de l'Homme d'après les lois de l'Évolution naturelle. Par P. VERNIAL, Docteur en Médecine, Membre de la Société d'Anthropologie de Paris. Paris: Germer Baillière, 1881. Pp. 139.

An attempt to prove that, both in physical and in moral respects, man is evolved from the lower animal forms. Clearly written, but, as the author allows, "un peu un ouvrage de compilation".

Études sur la Sélection dans ses Rapports avec l'Hérédité chez l'Homme. Par le Dr. PAUL JACOBY, Membre de la Société d'Anthropologie et d'Ethnologie, &c. Avec un tableau de tracés graphiques. Paris: Germer Baillière. 1881. Pp. 611.

This book treats with great ability and originality a question propounded in 1874 by the Madrid Royal Academy of Medicine—as to Selection in its relations with Heredity in Man. The author, who has already won distinction by a series of medico-psychological studies published within the last twelve years, conceived the idea that the question could best, or indeed could only, be answered by confining the inquiry to two particular forms of selection—selection by exclusive social position (as of governing families), and selection by intelligence and talent. Many other forms of selection obtain among men (maintenance of standing armies, &c.), but in such wise as to exclude the influence of heredity.

In examining, then, the inherited effects of selection by way of "Power," it seemed to Dr. Jacoby, as an alienist by profession, that he might best make an exhaustive study, from the medico-psychological point of view, of the degeneration of the various branches of the Julian family, from Caesar to Nero, in the light of the abundant records supplied by the Roman historians. This he carries through with the utmost particularity and, in general, with remarkable force and insight from p. 8 to p. 319 of his work. A concluding long chapter in the first part of his work (pp. 320-430) treats more summarily, from the same point of view, the dynastic histories of Italy, Spain, Portugal, France, and England, till the 18th century; and the inquiry will be resumed for the 18th and 19th centuries, on the minuter scale, in another volume about to be sent to press.

The investigation of selection by "Talent" is conducted in a way

no less original. Starting from the general opinion as to the effect of civilisation in fostering insanity, and more especially from the positions of Lélut and Moreau (of Tours) as to the connexion between superior mental power and liability to neuropathic (psychopathic) affections, he brings all the resources of statistical science to bear upon the interpretation of a list he has drawn up of all the more distinguished men produced in the different Departments of France throughout the 18th century. The more particular object of the inquiry is to discover a relation between the appearance of superior talent and superior civilisation as assumed to depend on the two elements of general populousness and predominance of town over country within a certain area; such civilisation being proved to have determinate effects upon the life, physical and moral, and upon the propagative power of individuals. It is impossible here (or at least now) to give account of the painstaking way by which Dr. Jacoby has to reach his conclusions, but it is due to the magnitude and importance of his research that these should be given in his own words:—

“Ainsi, dans la population d’une contrée, d’un pays, il s’établit un courant constant des campagnes vers les villes, et des petites villes vers les grandes, courant qui apporte à ces dernières toutes les forces vives du pays. Il en résulte une sélection des talents, des capacités, des énergies et des intelligences au sein des villes, et cela au détriment des campagnes—sélection dont la conséquence immédiate est d’élever avec une rapidité toujours croissante le niveau intellectuel des villes et de baisser celui des campagnes. Mais parallèlement aux talents, aux capacités, aux énergies, croît aussi dans la population urbaine l’élément névropathique, qui se manifeste très diversement, et qui conduit fatalement aux psychopathies, aux grandes névroses, à la mortalité infantine, et finalement à la stérilité et à l’extinction de la race. Nous avons vu déjà que tel était le résultat de la sélection par privilèges sociaux et par inégalité politique et économique, inégalité et sélection qui produisent l’ignorance et la misère en bas, la folie, le crime et la stérilité en haut. Maintenant nous avons étudié la sélection des privilèges intellectuels et moraux, que l’homme reçoit non de la société, mais de la nature, et nous voyons se produire, comme conséquence de cette sélection, un résultat également triste pour les deux couches en lesquelles se divisent ainsi les populations: nous voyons les capacités, les talents, l’énergie, l’activité, mais aussi les maladies nerveuses, les phrénopathies, le suicide, la mortalité des enfants, la stérilité, et finalement l’extinction de la race, ce résultat nécessaire, inévitable de la dégénérescence, se produire dans les villes, et l’ignorance, la stupidité, la bêtise, devenir l’apanage des campagnes.”

Die Erscheinung der Dinge in der Wahrnehmung. Eine analytische Untersuchung von C. F. HEMAN. Leipzig: Hinrichs, 1881. Pp. 170.

This essay, hailing from Basel, is evidently the work of a Catholic pen. The author sifts with critical intelligence the results of the later investigations of sense-perception from the physiological side, and seeks to show that, when truly interpreted in the light of what perception really is—a purely psychical process, they imply a view of things essentially different from that of modern Idealism, more especially as elaborated by Kant, and related rather to the earlier

Scholastic doctrine. The general conclusions of the essay, which deserves attention, are thus given:—

"(1) Sense-perception is a principle of true knowledge, for it reveals to us the existence of real things.

"(2) Sense-perception is a principle of true knowledge in this respect also, that in it an Intelligible becomes manifest (as sensation), whereof the understanding could never have ken without sense-perception.

"(3) Because the Intelligible, appearing as sense in perception, is such that our understanding can know and grasp it as intelligible; because, thus, the principles of understanding have application to something objectively real;—our ideas of things are no mere subjective constructions of intellect, but there corresponds to them something objectively real, namely, that which as objectively intelligible underlies the percept and is its objective, productive principle."

Commentar zu Kant's Kritik der reinen Vernunft. Zum hundertjährigen Jubiläum derselben herausgegeben von Dr. H. VAIHINGER, Professor der Philosophie an der Universität Strassburg. Erster Band, erste Hälfte. Stuttgart: Spemann, 1881. Pp. xvi, 208.

This first instalment of a work that will receive later on the critical appreciation that is due to the extraordinary diligence and ambitious purpose of the author, breaks off the Commentary in the middle of the Introduction to the *K.d.r.V.* Before the Introduction, the Preface to the First Edition has about eighty pages devoted to its elucidation; the Preface to the Second Edition being left over to the end of the whole work, as requiring for its proper understanding a knowledge of the *Kritik* itself. The Commentary is led up to in a "General Introduction" (pp. 1-22), treating of the historic and present importance of the *Kritik*, and reviewing the literature it has evoked; followed by a "Special Introduction" (pp. 23-70), defining Criticism in relation to Dogmatism and Scepticism. In his preface, Dr. Vaihinger announces his aim to be the application to the *K.d.r.V.* of the same methods of interpretation that have been applied by such men as Bonitz and Waitz to works of Aristotle's. Continuous and exhaustive interpretation of the text; collation of parallel passages; critical sifting and working-in of all previous exegetic materials; exploration of Kant's historic standing-ground; internal criticism; thoroughgoing reference to the polemical literature; indication of points of connexion for later thinkers, as also of the developments and transformations of the Kantian doctrine in relation to the moot-questions of modern philosophy; discussion of the great controversies as to the aim and method of the *K.d.r.V.*, comparative value of the First and Second Edition, &c.; revision of the text; and provision of indexes, with a bibliography—these are the main features of the Commentary as it will be carried out. As Dr. Vaihinger concludes his preface with a request for bibliographical information, his attention may be directed to the most serious omission, so far as this country is concerned, in his preliminary survey of Kantian literature. He makes no mention of Thomas Wirmgan who (as already noted in *MIND* XV.) contributed to the *Encyclopaedia Londinensis* from 1812 to 1825, in five articles—'Kant,' 'Logic,' 'Metaphysics,' 'Moral Philosophy,' 'Philosophy'

—a more elaborate exposition of the *K.d.r.V.* and other of Kant's works than could be read in English till the last few years.

Nachträge zu Kant's Kritik der reinen Vernunft. Aus Kant's Nachlass herausgegeben von BENNO ERDMANN. Kiel: Lipsius & Fischer, 1881. Pp. 59.

After the beginning made of Dr. Vaihinger's comprehensive *Commentary* in celebration of the first appearance of Kant's *Kritik d.r.V.* one hundred years ago, one other of the many *Gelegenheitsschriften* of the year should not be passed over without a word of notice. Dr. B. Erdmann, who of late has been so much in the front among editors and critics of Kant, here prints, for the first time, the series of notes in Kant's handwriting found in his copy of the First Edition preserved in the library of the University of Königsberg. They were used only to a small extent in the second edition of 1787, though written down, it can hardly be doubted, in the intervening years from 1781. Their value lies more in the clearing up of particular passages than in any new light they throw upon the development of his ideas within the period.

Kleine Schriften. Von CHRISTOPH SIGWART, Professor der Philosophie an der Universität Tübingen. 1te u. 2te Reihe. Freiburg i. B. u. Tübingen: Mohr, 1881. Pp. 286, 255.

Most of the essays here brought together have already appeared in print, either in journals or University-programmes, but the collection is much to be welcomed. The First Series is of biographical subjects, all except the last (on Schleiermacher) belonging to the transition-period preceding the modern era—in the following order:—(1) Cornelius Agrippa von Nettesheim, (2) Theophrastus Paracelsus, (3) Giordano Bruno at the Bar of the Inquisition, (4) Thomas Campanella and his Political Ideas, (5) Johannes Kepler. Of these, the first two sketches now appear for the first time. The subjects of the Second Series are—(1) The Moral foundations of Science, (2) The fight against Final Cause, (3) Our notions of Space- and Time-quantities, (4) The notion of Will and its relation to the notion of Cause, (5) The Differences of Individualities, (6) Vanity. The fifth paper carries out some ideas that were expressed in the author's article on "Temperaments," in the *Pädagogische Encyclopädie* of Schmid &c. One or two of the others were delivered as lectures, and have not before been printed.

Reden u. Aufsätze. Neue Folge. Von GUSTAV RÜMELIN, Kanzler der Universität Tübingen. Freiburg i. B. u. Tübingen: Mohr, 1881. Pp. 624.

The author has the official duty of delivering an oration before the University of Tübingen at a yearly prize-distribution. The present volume takes up the series of orations from 1875, earlier ones having been collected in a previous volume. They range over the following subjects:—Connexion of Moral and Intellectual Training;

Psychological Assumption of the Right to Punish; Division of Labour in Science; Laws of History; Nature of Custom; Idea of Justice. The Essays, filling more than two-thirds of the volume, are of a social or political cast.

Lichtstrahlen aus Ed. v. Hartmann's Sämmtlichen Werken. Herausgegeben u. mit einer Einleitung versehen von Dr. MAX SCHNEIDEWIN, Oberlehrer am Gymnasium zu Hameln. Berlin, Duncker; London: Trübner, 1881. Pp. 341.

A daintily printed Hartmann Anthology, the extracts being taken from the whole range of the philosopher's works and disposed under seventeen heads from "Philosophy in general" to "Darwinism" in particular. The compiler writes an enthusiastic Introduction (pp. 34) in which he reviews shortly the scope of Hartmann's fourteen works great and small, and appreciates generally the nature and worth of the remarkable influence that has been exerted by a thinker who is still only thirty-eight years old. Great and extraordinary as the influence has been, Dr. Schneidewin does not conceal that it has hardly been maintained of late as it used to be; the second of the two greater works, the *Phänomenologie des sittlichen Bewusstseins* (1879), having, in spite of its more popular subject, by no means excited the same attention as the *Philosophie des Unbewussten*. The hope is expressed that the present collection of the philosopher's opinions may do something to increase the disposition to go to the works themselves.

Ueber die Principien der Aristotelischen Philosophie u. die Bedeutung der Phantasie in derselben. Von J. FROHSCHAMMER, Professor der Philosophie in München. München: Ackermann, 1881. Pp. 143.

The author, who was last engaged in demonstrating a certain anticipation of his own view of "Phantasy as ground-principle of the world-process" in the importance ascribed by Spinoza and by Kant to the faculty of Imagination (MIND XVII., 153), proceeds here to establish also a relation between his own and Aristotle's way of thinking. Not that Phantasy can be proved to be in Aristotle the proper principle of being, becoming and thinking: "but it can be shown that every Aristotelian principle contains a moment that assimilates its essence or activity to the essence and working of Phantasy (in the wider sense); and that a certain unity can be introduced into the Aristotelian doctrine of principles" from this point of view.

Rechtsphilosophie. Der letzte Grund des Rechts u. seine practischen Consequenzen bearbeitet unter Berücksichtigung der Möglichkeit ihrer Verwirklichung von S. A. BYK. Leipzig: Schöfer, 1881. Pp. 244.

An *objective* investigation of the philosophy of Right, as opposed to either of the *subjective* conceptions of Right connecting it with Will or Utility. The author proceeds, upon an inductive comparison of acknowledged rights, to find the common element of them all. The

Philosophy of Right, following thus on the Philosophy of Rights, leads him finally to the Philosophy of State-rights.

An Essay on the Philosophy of Self-Consciousness, comprising an Analysis of Reason and the Rationale of Love. By P. F. FITZGERALD. London: Trübner.

"The object of this *forthcoming* Essay is to show that the necessary subjective concepts of the understanding of the Ego have their ground in its actual being, they becoming in introspective reflection the data for universal conclusions concerning Being in the abstract, and furnishing the 'sufficient reason' for faith, love and hope in the Supreme Being, and consequently providing a satisfactory though transcendental solution of the problem of man's destiny; sensation and the sensuous universe being regarded merely as the conditions of spiritual manifestation."

IX.—MISCELLANEOUS.

Professor Hermann Lotze, whose migration from Göttingen to Berlin was chronicled in the last No. of *MIND*, has occupied Hegel's chair in the metropolitan university for but a few weeks. He had begun lecturing with great success on Metaphysic and Psychology, when going to Göttingen for the Whitsuntide holidays, he caught cold and, on his return to Berlin, died of inflammation of the lungs, aggravated by heart-affection, on the 1st of July. His health had been extremely delicate for many years, and it was only by the most sedulous care that he was kept alive for the accomplishment of so much work. Born at Bautzen on May 21st, 1817, he had just completed his sixty-fourth year, when thus snatched away from the new and wider career as a teacher that he had the courage to face. The other main dates of his life have already been given in an early No. of this journal (III. 363), when an attempt was made to characterise his remarkable and indeed unique influence on German thought in the present generation. The proper occasion to return to the lesson of his life will be when the promised and soon-expected translation of the first two volumes of his crowning work the *System der Philosophie* appears from Oxford. Unfortunately, it seems that his sudden death has for ever deprived the world of the third volume of the *System*, which (after Logic and Metaphysic in the first two volumes) was to treat, in conclusion, of Ethics, Æsthetics, and Philosophy of Religion. It had yet to be composed, and there do not even exist preparatory notes for it, Lotze's habit being to think everything out in his head before proceeding to write. The more is it then to be desired that the translators should not confine themselves to the two extant volumes of the *System* but should also give an English rendering of the *Mikrokosmos* (3 vols. 1856-64), which has been destined to remain now as the only finished exposition of Lotze's philosophic

thought but which also may be said to be fitted, by the artistic excellence of its form, to make his influence most widely felt. The German press has worthily appreciated the loss to the nation in the great thinker's death; more especially may be mentioned the articles in the daily *National-Zeitung* (Nos. 390, 92, 94) by E. Rehnisch, and in the weekly *Im neuen Reich* (No. 36) by H. Sommer.

The Aristotelian Society for the Systematic Study of Philosophy will resume its fortnightly meetings at 20 John Street, Adelphi, on October 10, when the President, Mr. Shadworth H. Hodgson, will deliver an address on "The Practical Bearing of Speculative Philosophy". The meetings will then be devoted to historical studies and "Distinction-work".

The Committee of the Zetetical Society, "founded in 1878 to furnish opportunities for the unrestricted discussion of Social, Political and Philosophical subjects," wishes it to be made known that it thinks of establishing at this time a specially Philosophical Section for the discussion, once a month, of questions in Metaphysics, Logic, Psychology, Political Economy, Jurisprudence, and Ethics. The annual subscription to be 5s., and members of the Section to be, for the present and provided there is room, admitted to the monthly meetings (held on different nights) of the general Society. As the fulfilment of the plan depends on the support promised, "ladies or gentlemen, likely to become members, are requested to forward their names at once (without in any way pledging themselves) to the Hon. Secretary, Mr. J. M. Fells, 68 Melbourne Terrace, Barnwell Road, Brixton, S.W., from whom any farther information can be obtained".

Mr. Daniel Greenleaf Thompson, of Brooklyn, N.Y., who has often written in these pages, has completed an elaborate "System of Psychology" (in two large volumes), which will appear next spring simultaneously in London (with Messrs. Longman) and in New York.

La Philosophie Positive, founded by E. Littré and G. Wyruboff thirteen years ago, will now, after Littré's death, continue to be conducted on the same principles as hitherto, by MM. Ch. Robin and G. Wyruboff.

Still another philosophical journal is announced from Italy, as soon to appear. It will bear the title *Rivista di Filosofia Scientifica*, to be directed by E. Morselli, R. Ardigò, G. Boccardo, G. Canestrini, G. Sergi.

THE JOURNAL OF SPECULATIVE PHILOSOPHY.—Vol. XV., No. 1. Schelling—On Medicine and the Theory of Organic Nature (trans.). Hegel—On the Absolute Religion (trans.). Rosenkranz—The Science of Education (paraph.). W. T. Harris—Analysis of Rosenkranz's Pedagogics. Kant—Anthropology (trans.). Notes and Discussions, &c.

REVUE PHILOSOPHIQUE.—VI^eme Année, No. 7. J. Ochrowicz—Projet d'un congrès international de psychologie. A. Espinas—La philosophie écossaise au 18^{me} siècle et les origines de la philosophie anglaise contemporaine (ii.). G. Guérout—Du rôle du mouvement dans les émotions esthétiques (fin). H. Spencer—Le corps consultatif. Analyses et Comptes-rendus (W. Wallace, *Epicureanism*; J. Veitch, The 'Method' of

Descartes, &c.). Notices bibliographiques. Rev. des Périod. No. 8. P. Janet—Sur la valeur du syllogisme. A. Espinas—La philosophie écossaise &c. (iii.). P. Tannery—L'éducation platonicienne (iii.). Analyses et Comptes-rendus (J. P. Mahaffy, *Descartes*, &c.). Notices bibl. Rev. des Périod. No. 9. H. Spencer—Les corps représentatifs. G. Tarde—La psychologie en économie politique. C. Bérard—La théorie du comique dans l'esthétique allemande. Analyses et Comptes-rendus. Rev. des Périod.

LA CRITIQUE PHILOSOPHIQUE.—Xme Année, Nos. 21-31. C. Renouvier—De la justification de la méthode infinitésimale en géométrie: examen du système de M. Evellin (21); Politique et Socialisme: x., xi. La question du progrès: Burdin, Saint-Simon et Comte (22, 23, 27); Des jugements déterministes en politique (25); La philosophie de l'histoire de Just Muiron (26); La Philosophie de Spinoza (29), Les origines de Spinosisme (30), Descartes, Spinoza et Leibnitz (31) (*à propos* of F. Pollock, *Spinoza*). F. Pillon—Le doute cartésien et le *cogito ergo sum* (24); Le principe cartésien de l'evidence et les preuves cartésiennes de l'existence de Dieu (26); Un mot sur l'enseignement obligatoire des devoirs envers Dieu (27-9).

LA FILOSOFIA DELLE SCUOLE ITALIANE.—Vol. XXIII. Disp. 3. T. Mamiani—Intorno alla Sintesi ultima del Sapere e dell' Essere. F. Tocco—Filosofia di Kant, Fenomeni e Noumeni. G. Zuccante—Del metodo di filosofare di Socrate. Bibliografia (R. Adamson, *Ueber Kant's Philosophie*, &c.). Notizie, &c.

ZEITSCHRIFT FÜR PHILOSOPHIE, &c.—Bd. LXXIX., Heft 1. G. Runze—Kritische Darstellung der Geschichte des ontologischen Beweisfahrens seit Anselm (ii.). J. Volkelt—Die Farben u. die Seele. J. L. A. Koch—Ueber das Unterscheidungsvermögen. Th. Achelis—Kritische Darstellung der platonischen Ideenlehre. Recensionen. Bibliographie.

PHILOSOPHISCHE MONATSHEFTE.—Bd. XVII., Heft 6. A. Stadler—Ueber das Verhältniss der logischen zur mathematisch-naturwissenschaftlichen Reflexion. Recensionen (F. Pollock, *Spinoza*, &c.). Literaturbericht. Bibliographie, &c.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE.—Bd. V., Heft 3. P. Harzer—Leibniz' dynamische Anschauungen mit besonderer Rücksicht auf die Reform des Kräftenmasses u. die Entwicklung des Princips der Erhaltung der Energie. E. Laas—Vergeltung u. Zurechnung (ii.). E. Kraepelin—Ueber Trugwahrnehmungen (Schluss). J. Bergmann—Erwiderung. C. Sigwart—Berichtigung. Anzeigen. Selbstanzeigen, &c.

Other Books, &c., received: J. Wilson, *Studies of Modern Mind and Character at Several European Epochs*, London (Longmans), pp. 444. J. Sully, *Illusions* (2nd Ed.), London (Kegan Paul), pp. 372. An Octogenarian, *Thoughts on the Source of Life*, London (Ridgway), pp. 17. J. G. Macvicar, *A Supplement to a Sketch of a Philosophy*, London (Williams & Norgate), pp. 16. G. M. Beard, *Nature and Phenomena of Trance*, New York (Putnam), pp. 31. F. S. Warneck, *Das Princip der Gleichberechtigung u. die modernen Emancipationsfragen*, Hamburg, Mitau (Behre), pp. 175. F. Michelis, *Die Lügnerin Germania*, Landsberg a. W. (Schönrock), pp. 26. E. Montgomery, *Zur Lehre der Muskelcontraktion*, Bonn (Strauss—Sep. Abt. aus Pflüger's Archiv, XXV.). E. v. Schmidt, *Entgegnung auf die Recensionen meiner Schrift "Die Philosophie der Mythologie u. M. Müller,"* Moskau (Liessner, &c.), pp. 21. M. Lazarus, *Erziehung u. Geschichte* (Schottlaender). M. Runze, *Kant's Bedeutung auf Grund der Entwicklungsgeschichte seiner Philosophie*, Berlin (Duncker), pp. 40. P. A. Romberg, *Filosofi och Religion*, Karlskrona (Åpelquist), pp. 35.

